HCD-H4800

SERVICE MANUAL

AEP Model

- **HCD-H4800 is the TUNER/COMPACT DISC PLAYER in MHC-4800.**

This set is almost the same as model HCD-H3800 (AEP, UK Model) previously produced.
Therefore, see the service manual for the information which is not contained in this service manual.

SECTION 6 EXPLODED VIEWS

G: Germany Model
IT: Italian Model

6-1. CHASSIS SECTION

PAGE	HCD-H3800			HCD-H4800		
	Ref. No	Part No.	Description	Ref. No	Part No.	Description
36	* 4	A-4360-227-A	PANEL BOARD, COMPLETE (AEP)	* 4	A-4360-117-A	PANEL BOARD, COMPLETE (AEP)
	*	A-4360-731-A	PANEL BOARD, COMPLETE (G)	*	A-4360-739-A	PANEL BOARD, COMPLETE (G)
	*	A-4360-735-A	PANEL BOARD, COMPLETE (IT)	*	A-4360-743-A	PANEL BOARD, COMPLETE (IT)
	* 14	A-4360-226-A	TUNER BOARD, COMPLETE (AEP)	* 14	A-4360-116-A	TUNER BOARD, COMPLETE (AEP)
	*	A-4360-730-A	TUNER BOARD, COMPLETE (G)	*	A-4360-738-A	TUNER BOARD, COMPLETE (G)
	*	A-4360-734-A	TUNER BOARD, COMPLETE (IT)	*	A-4360-742-A	TUNER BOARD, COMPLETE (IT)
	* 17	4-955-031-31	PANEL (HCD), BACK (AEP)	* 17	4-955-031-41	PANEL (HCD), BACK (AEP)
	* 18	A-4360-225-A	CD BOARD, COMPLETE (AEP)	* 18	A-4360-115-A	CD BOARD, COMPLETE (AEP)
	*	A-4360-729-A	CD BOARD, COMPLETE (G)	*	A-4360-737-A	CD BOARD, COMPLETE (G)
	*	A-4360-733-A	CD BOARD, COMPLETE (IT)	*	A-4360-741-A	CD BOARD, COMPLETE (IT)

MICROFILM

TUNER/COMPACT DISC PLAYER

SONY®

SECTION 7 ELECTRICAL PART LIST

PAGE	HCD-H3800			HCD-H4800		
	Ref.No	Part No.	Description	Ref.No	Part No.	Description
40	*	A-4360-225-A	CD BOARD, COMPLETE (AEP)	*	A-4360-115-A	CD BOARD, COMPLETE (AEP)
	*	A-4360-729-A	CD BOARD, COMPLETE (G)	*	A-4360-737-A	CD BOARD, COMPLETE (G)
	*	A-4360-733-A	CD BOARD, COMPLETE (IT)	*	A-4360-741-A	CD BOARD, COMPLETE (IT)
42	*	A-4360-227-A	PANEL BOARD, COMPLETE (AEP)	*	A-4360-117-A	PANEL BOARD, COMPLETE (AEP)
	*	A-4360-731-A	PANEL BOARD, COMPLETE (G)	*	A-4360-739-A	PANEL BOARD, COMPLETE (G)
	*	A-4360-735-A	PANEL BOARD, COMPLETE (IT)	*	A-4360-743-A	PANEL BOARD, COMPLETE (IT)
43	*	A-4360-226-A	TUNER BOARD, COMPLETE (AEP)	*	A-4360-116-A	TUNER BOARD, COMPLETE (AEP)
	*	A-4360-730-A	TUNER BOARD, COMPLETE (G)	*	A-4360-738-A	TUNER BOARD, COMPLETE (G)
	*	A-4360-734-A	TUNER BOARD, COMPLETE (IT)	*	A-4360-742-A	TUNER BOARD, COMPLETE (IT)

Other boards are the same as those of HCD-H3800.

ACCESSORIES & PACKING MATERIALS

PAGE	HCD-H3800			HCD-H4800		
	Ref.No	Part No.	Description	Ref.No	Part No.	Description
47	*	4-957-154-21	INDIVIDUAL CARTON	*	4-957-154-11	INDIVIDUAL CARTON

English
93C09Y0937-1
Printed in Germany
© 1993
Published by Audio Corporate Planning Group

Sony Corporation
Audio Group

SECTION 1

SERVICE NOTE

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

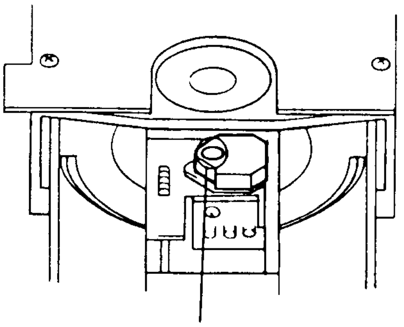
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

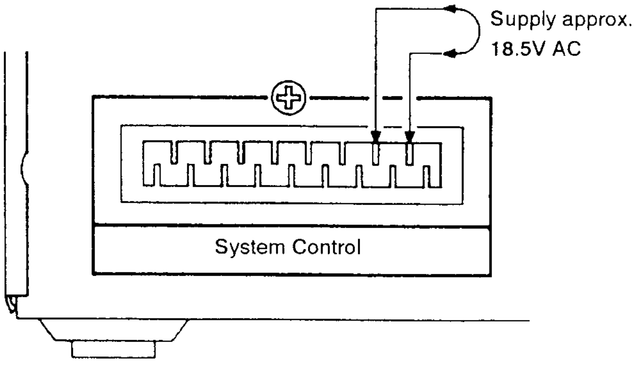
1. Turn POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objective lens.



❶ Confirm that laser beam is spread.
❷ Up and down motion of the objective lens. (3 times)

- **POWER SUPPLIED WHILE SERVICING**
  This unit does not have its own power supply. It operates on the power supplied from the amplifier (TA-H3800, SEQ-H3800) used by this series. Therefore connect the amplifier when servicing the unit as in electrical repairs.

- **TURNING ON THE POWER FORCIBLY**
  This unit does not have a power switch. Its power is turned on/off by the amplifier. However, if power is being supplied, its power can be turned on without an amplifier using the following method.
  - Press the "+" and "⏭" switches together to turn on the CD section, (Tuner section stops functioning.)
  - Press the "–" and "⏮" switches together to turn on the tuner section (CD section stops functioning.)



(The power can also be supplied by connecting the connector of the "CDP/TC" section of the PFJ-1 tool.)

- **SERVICE MODE FOR CHECKING THE FL TUBE**
  All FL display tubes will light up when the "BAND" and "⏏ OPEN/CLOSE" switches are pressed together.

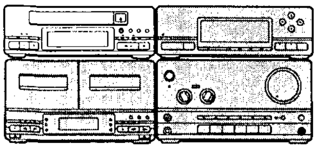
- **MEASURING THE TUNER/TCB BOARDS VOLTAGE**
  Prepare the following tools (extension cables) when measuring the voltages of the TUNER and TOB boards.
  1) 4-pin extension cable (J-8000-026-A) ×3
  2) 8-pin extension cable (J-8000-027-A) ×1

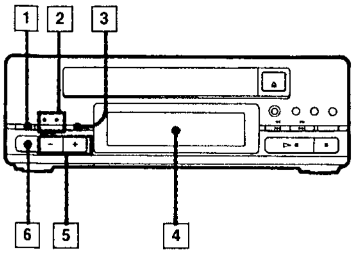
SECTION 2
GENERAL

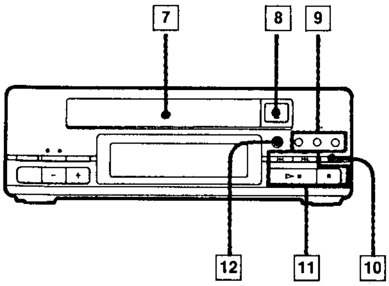
This section is extracted from instruction manual.

Parts Identification

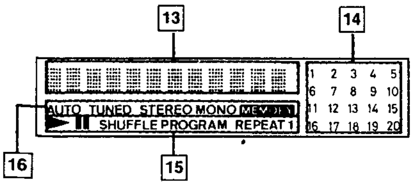
A







B


13
14
AUTO TUNED STEREO MONO MEMORY
▶ II SHUFFLE PROGRAM REPEAT 1
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
16
15

Tuner/CD Player Section A

Tuner

- 1 MEMORY button
- 2 MODE button and PRESET/TUNING indicators
- 3 STEREO/MONO button
- 4 Display window
- 5 –/+ button
- 6 BAND selector

CD player

- 7 Disc tray
- 8 OPEN/CLOSE ⏏ button
- 9 PLAY MODE buttons
  - CONTINUE button
  - SHUFFLE button
  - PROGRAM button
- 10 REPEAT button
- 11 CD operation buttons
  - ⏮◀◀ ▶▶⏭: Manual search (when kept depressed)/Automatic Music Sensor (when pressed)
  - ▷II: Play/Pause
  - ■: Stop
- 12 EDIT button

Display window B

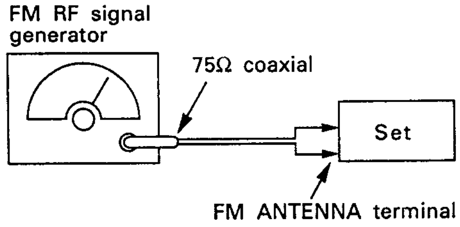
- 13 Frequency and playing time display
- 14 CD selection numbers display
  Preset station number display
- 15 CD status display
- 16 Tuner status display

3-2. Tuner Section Adjustments

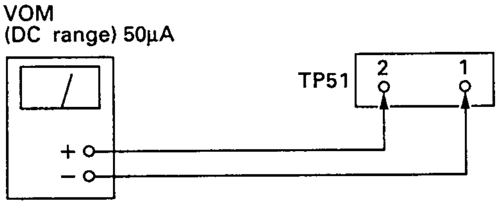
FM SECTION

Note : The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.

Setting :


FM RF signal generator
75Ω coaxial
Set
FM ANTENNA terminal

Carrier frequency	: 98MHz
Modulation	: 1kHz, 40kHz deviation
Output level	: 1mV (60dBμ)


VOM
(DC range) 50μA
TP51
2
1
+
−

FM Discriminator Alignment (NULL Check)

BAND switch: FM

Procedure:

1. Supply a 1mV (60dBμ) 98MHz signal from the ANTENNA terminal.
2. Tune the set to 98MHz.
3. Adjust IFT51 for 0V reading on the VOM.

Adjustment Location: TUNER board.

Note : FM tuned indication lighting level adjustment should be made after FM discriminator alignment.

FM Tuned Indication Lighting Level Adjustment

BAND switch: FM

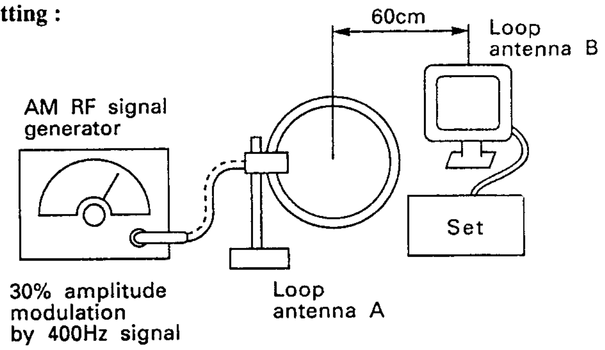
Procedure:

1. Supply a 22.5μV (27dBμ) (Except Germany and Italian models) or 12.5μV (22dBμ) (Germany and Italian models) 98MHz signal from the ANTENNA terminal.
2. Tune the set to 98MHz.
3. Adjust RV52 so that the TUNED light up.
4. Confirm that the TUNED light off with FM RF SSG output level set at −3dB.

Adjustment Location : TCB board.

MW SECTION

Setting :


60cm
Loop antenna B
AM RF signal generator
Set
30% amplitude modulation by 400Hz signal
Loop antenna A

MW Tuned Indication Lighting Level Adjustment

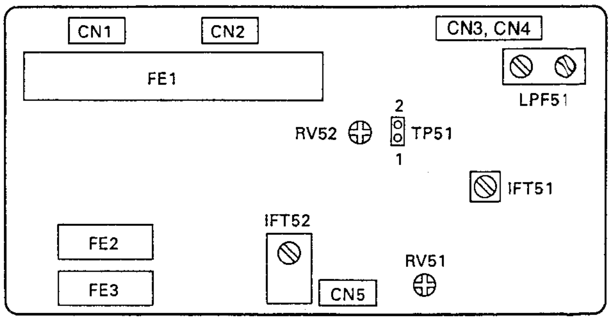
BAND switch: MW

Procedure:

1. Set loop antenna A so that the loop antenna B input level becomes 1mV (60dBμ).
2. Tune the set to 1,404kHz (9k step mode) (10k step mode : 1,490kHz).
3. Adjust the RV51 so that the TUNED light up.
4. Confirm that the TUNED light off with AM RF SG output level set at −3dB.

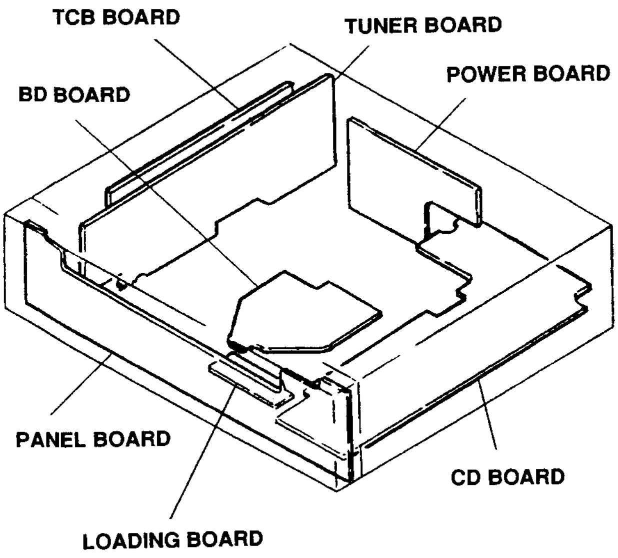
Adjustment Location : TCB board.

[TCB BOARD] — Component side —


CN1
CN2
CN3, CN4
FE1
LPF51
2
RV52
TP51
1
IFT51
IFT52
FE2
RV51
FE3
CN5

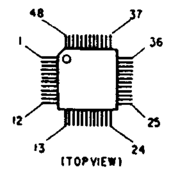
SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

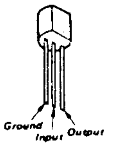

TCB BOARD
TUNER BOARD
POWER BOARD
BD BOARD
PANEL BOARD
CD BOARD
LOADING BOARD

4-2. SEMICONDUCTOR LEAD LAYOUTS

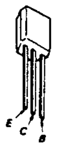
CXA1372AQ


48
37
1
36
12
25
13
24
(TOP VIEW)

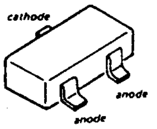
PST572C


Ground
Input
Output

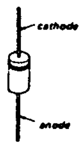
2SA1344



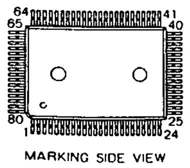
DCB010


cathode
anode
anode

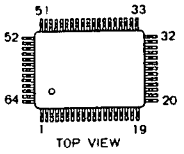
10E-2


cathode
anode

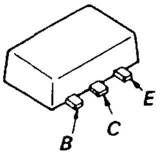
CXD2500BQ


64
41
65
40
80
25
1
24
MARKING SIDE VIEW

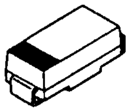
μPD75116GF-G38-3BE


51
33
52
32
64
20
1
19
TOP VIEW

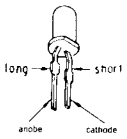
2SB798-DL
2SD999-CLCK



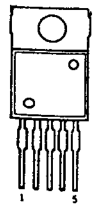
EC10QS-04



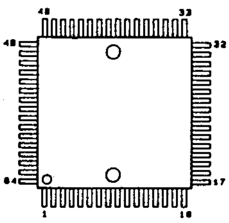
SEL2210S


long
short
anobe
cathode

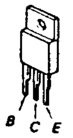
L78MR05



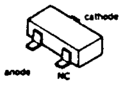
μPD78011GC-514-AB8


48
33
49
32
64
17
1
16

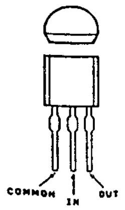
2SB1094-LK
2SD2012



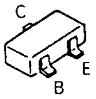
UZM3.9Z
UZM4.7B
UZM10Y
UZM11X


cathode
anode
NC

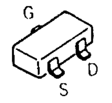
NJM79L24A


COMMON
IN
OUT

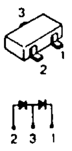
DTC144EK
2SC1623-L6
2SC3398
2SC3900



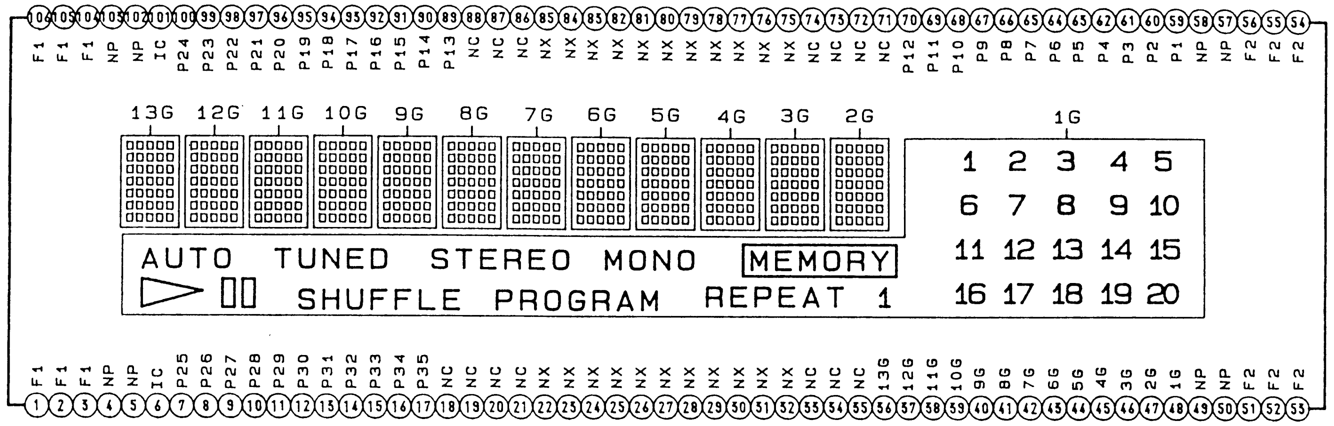
2SK208GR3

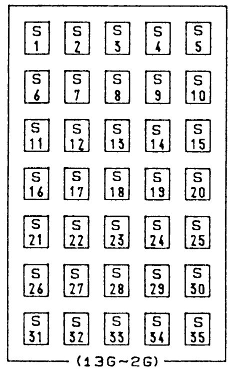


1SS226



- **FL601 (FLUORESCENT INDICATOR TUBE)**

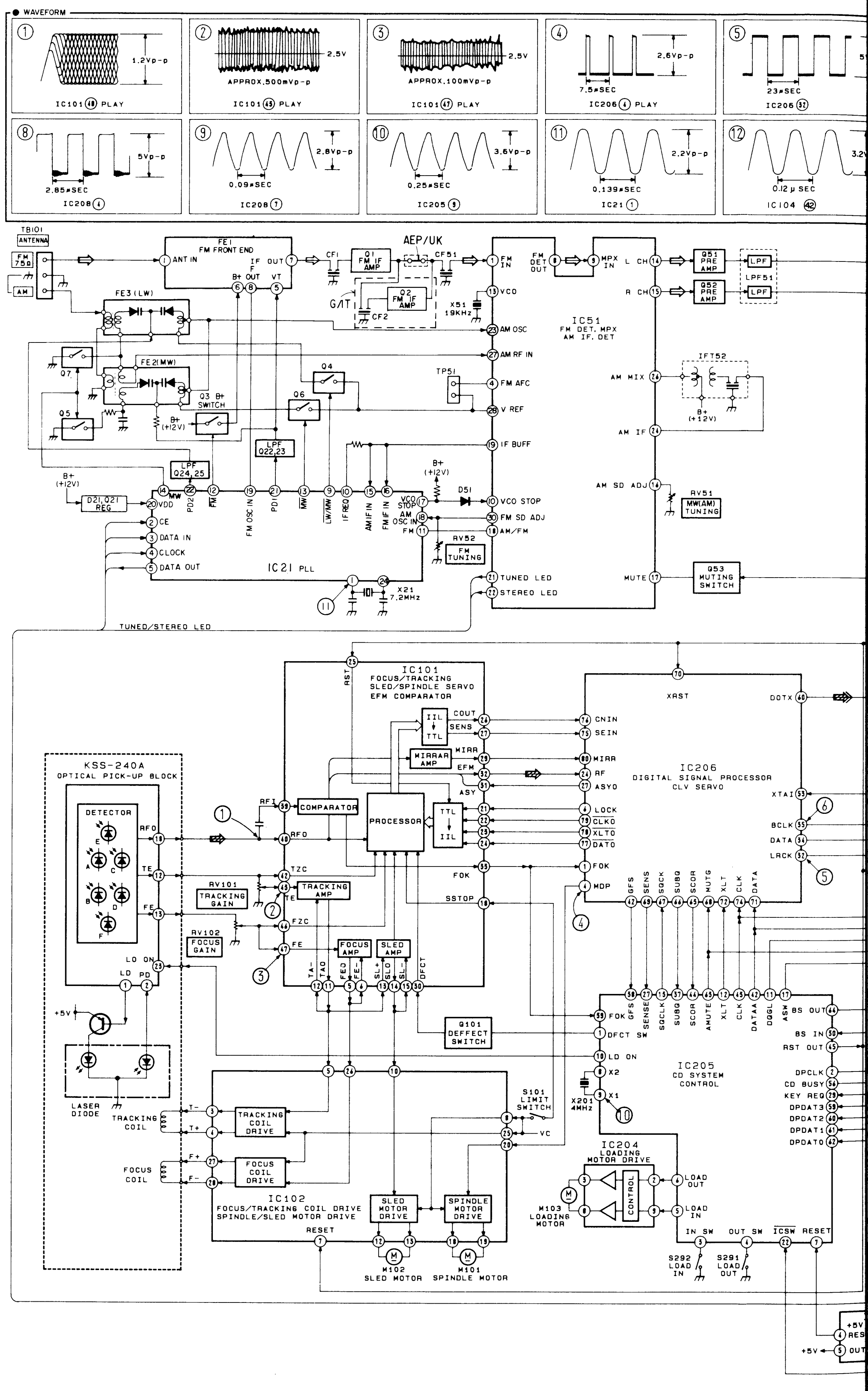

F1 F1 F1 NP NP IC P24 P23 P22 P21 P20 P19 P18 P17 P16 P15 P14 P13 NC NC NX NX NX NX NX NX NX NX NX NC NC NC P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 NP NP F2 F2 F2
13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
AUTO TUNED STEREO MONO MEMORY
SHUFFLE PROGRAM REPEAT 1
F1 F1 F1 NP NP IC P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 NC NC NC NC NX NX NX NX NX NX NX NX NC NC NC 13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G NP NP F2 F2 F2

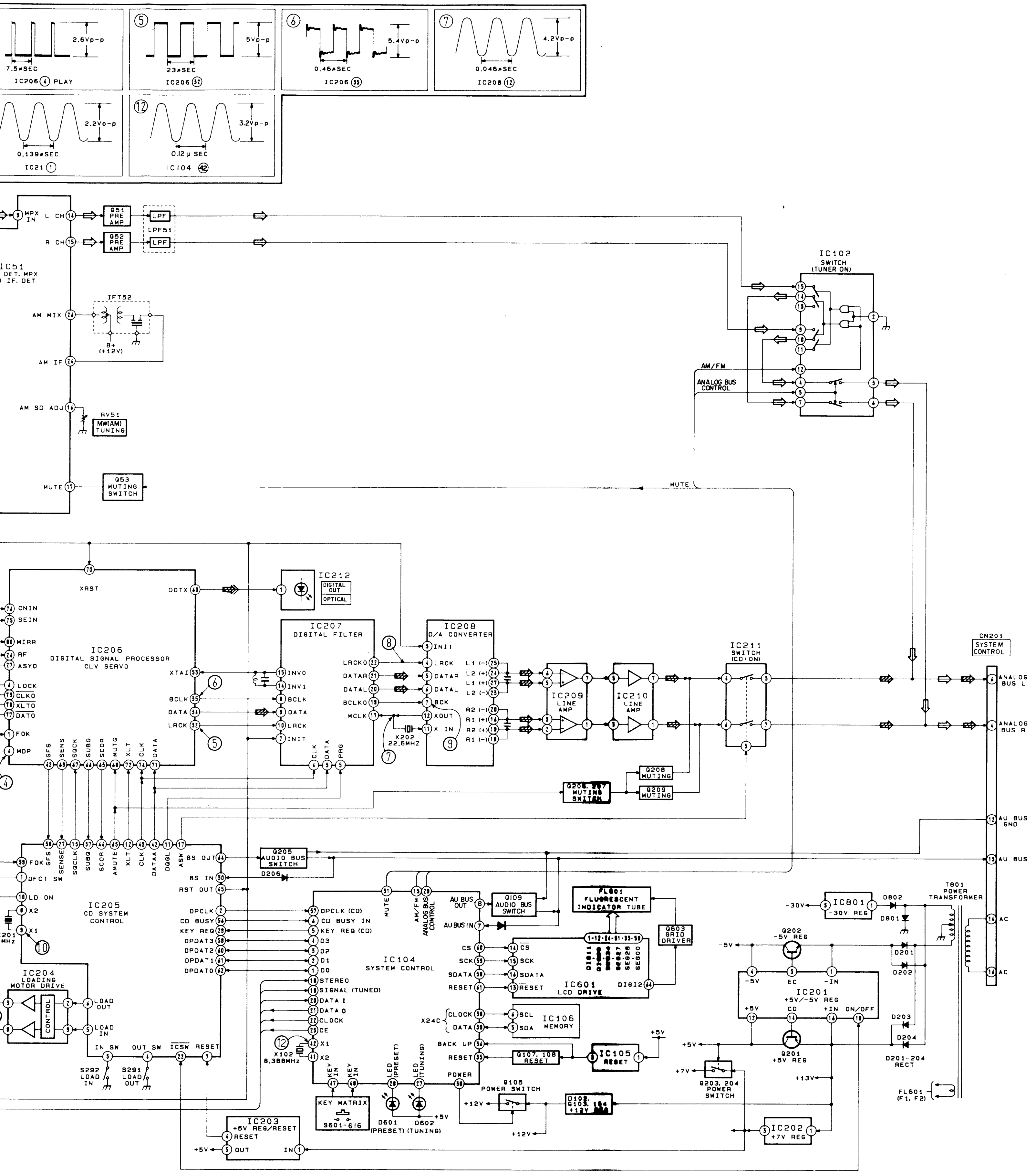

S1 S2 S3 S4 S5
S6 S7 S8 S9 S10
S11 S12 S13 S14 S15
S16 S17 S18 S19 S20
S21 S22 S23 S24 S25
S26 S27 S28 S29 S30
S31 S32 S33 S34 S35
(13G~2G)

- **SEGMENT CONNECTION TABLE**

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	**1**
P2	S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	S2	**2**
P3	S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	S3	**3**
P4	S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	S4	**4**
P5	S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	S5	**5**
P6	S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	S6	**6**
P7	S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	S7	**7**
P8	S8	S8	S8	S8	S8	S8	S8	S8	S8	S8	S8	S8	**8**
P9	S9	S9	S9	S9	S9	S9	S9	S9	S9	S9	S9	S9	**9**
P10	S10	S10	S10	S10	S10	S10	S10	S10	S10	S10	S10	S10	**10**
P11	S11	S11	S11	S11	S11	S11	S11	S11	S11	S11	S11	S11	**11**
P12	S12	S12	S12	S12	S12	S12	S12	S12	S12	S12	S12	S12	**12**
P13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	**13**
P14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	**14**
P15	S15	S15	S15	S15	S15	S15	S15	S15	S15	S15	S15	S15	**15**
P16	S16	S16	S16	S16	S16	S16	S16	S16	S16	S16	S16	S16	**16**
P17	S17	S17	S17	S17	S17	S17	S17	S17	S17	S17	S17	S17	**17**
P18	S18	S18	S18	S18	S18	S18	S18	S18	S18	S18	S18	S18	**18**
P19	S19	S19	S19	S19	S19	S19	S19	S19	S19	S19	S19	S19	**19**
P20	S20	S20	S20	S20	S20	S20	S20	S20	S20	S20	S20	S20	**20**
P21	S21	S21	S21	S21	S21	S21	S21	S21	S21	S21	S21	S21	▷
P22	S22	S22	S22	S22	S22	S22	S22	S22	S22	S22	S22	S22	▯▯
P23	S23	S23	S23	S23	S23	S23	S23	S23	S23	S23	S23	S23	SHUFFLE
P24	S24	S24	S24	S24	S24	S24	S24	S24	S24	S24	S24	S24	PROGRAM
P25	S25	S25	S25	S25	S25	S25	S25	S25	S25	S25	S25	S25	REPEAT
P26	S26	S26	S26	S26	S26	S26	S26	S26	S26	S26	S26	S26	1 (REPEAT)
P27	S27	S27	S27	S27	S27	S27	S27	S27	S27	S27	S27	S27	AUTO
P28	S28	S28	S28	S28	S28	S28	S28	S28	S28	S28	S28	S28	TUNED
P29	S29	S29	S29	S29	S29	S29	S29	S29	S29	S29	S29	S29	STEREO
P30	S30	S30	S30	S30	S30	S30	S30	S30	S30	S30	S30	S30	MONO
P31	S31	S31	S31	S31	S31	S31	S31	S31	S31	S31	S31	S31	MEMORY
P32	S32	S32	S32	S32	S32	S32	S32	S32	S32	S32	S32	S32	—
P33	S33	S33	S33	S33	S33	S33	S33	S33	S33	S33	S33	S33	—
P34	S34	S34	S34	S34	S34	S34	S34	S34	S34	S34	S34	S34	—
P35	S35	S35	S35	S35	S35	S35	S35	S35	S35	S35	S35	S35	—

4-3. BLOCK DIAGRAM


WAVEFORM
① 1.2Vp-p IC101 ⑱ PLAY
② 2.5V APPROX.500mVp-p IC101 ⑲ PLAY
③ 2.5V APPROX.100mVp-p IC101 ㊷ PLAY
④ 2.6Vp-p 7.5μSEC IC206 ④ PLAY
⑤ 23μSEC IC206
⑧ 5Vp-p 2.85μSEC IC208
⑨ 2.8Vp-p 0.09μSEC IC208 ⑦
⑩ 3.6Vp-p 0.25μSEC IC205 ⑨
⑪ 2.2Vp-p 0.139μSEC IC21 ①
⑫ 0.12μSEC IC104
TB101 ANTENNA FM 75Ω AM
FE1 FM FRONT END
FE3 (LW) FE2 (MW)
Q1 FM IF AMP Q2 FM IF AMP CF1 CF2 CF51 AEP/UK
Q3 B+ SWITCH Q4 Q5 Q6 Q7
LPF Q22,23 LPF Q24,25
D21,Q21 REG
IC21 PLL X21 7.2MHz
IC51 FM DET, MPX AM IF, DET
Q51 PRE AMP Q52 PRE AMP LPF LPF51
IFT52 RV51 MW(AM) TUNING RV52 FM TUNING
Q53 MUTING SWITCH
TUNED/STEREO LED
KSS-240A OPTICAL PICK-UP BLOCK
DETECTOR LASER DIODE TRACKING COIL FOCUS COIL
IC101 FOCUS/TRACKING SLED/SPINDLE SERVO EFM COMPARATOR
COMPARATOR PROCESSOR MIRROR AMP TRACKING AMP FOCUS AMP SLED AMP
RV101 TRACKING GAIN RV102 FOCUS GAIN
Q101 DEFFECT SWITCH
IC102 FOCUS/TRACKING COIL DRIVE SPINDLE/SLED MOTOR DRIVE
TRACKING COIL DRIVE FOCUS COIL DRIVE SLED MOTOR DRIVE SPINDLE MOTOR DRIVE
M102 SLED MOTOR M101 SPINDLE MOTOR
IC206 DIGITAL SIGNAL PROCESSOR CLV SERVO
IC205 CD SYSTEM CONTROL
S101 LIMIT SWITCH X201 4MHz
IC204 LOADING MOTOR DRIVE M103 LOADING MOTOR
S292 LOAD IN S291 LOAD OUT


2.6Vp-p
7.5µSEC
IC206 ④ PLAY
⑤
5Vp-p
23µSEC
IC206 ㉜
⑥
5.4Vp-p
0.46µSEC
IC206 ㉟
⑦
4.2Vp-p
0.046µSEC
IC208 ⑫
2.2Vp-p
0.139µSEC
IC21 ①
⑫
3.2Vp-p
0.12µ SEC
IC104 ㊷
MPX IN
L CH
R CH
Q51 PRE AMP
Q52 PRE AMP
LPF
LPF51
IC51
DET, MPX
IF, DET
IFT52
AM MIX
B+ (+12V)
AM IF
AM SD ADJ
RV51 MW(AM) TUNING
MUTE
Q53 MUTING SWITCH
IC102 SWITCH (TUNER ON)
AM/FM
ANALOG BUS CONTROL
MUTE
XRST
DOTX
IC212 DIGITAL OUT OPTICAL
CNIN
SEIN
MIRR
RF
ASYO
LOCK
CLKO
XLTO
DATO
FOK
MDP
IC206 DIGITAL SIGNAL PROCESSOR CLV SERVO
XTAI
BCLK
DATA
LRCK
GFS
SENS
SQCK
SUBQ
SCOR
MUTG
XLT
CLK
DATA
IC207 DIGITAL FILTER
INV0
INV1
BCLK
DATA
LRCK
INIT
CLK
DATA
PRG
LRCKO
DATAR
DATAL
BCLKO
MCLK
X202 22.6MHz
IC208 D/A CONVERTER
INIT
LRCK
DATAR
DATAL
BCK
XOUT
X IN
L1 (-)
L2 (+)
L1 (+)
L2 (-)
R2 (-)
R1 (+)
R2 (+)
R1 (-)
IC209 LINE AMP
IC210 LINE AMP
IC211 SWITCH (CD·ON)
Q208 MUTING
Q209 MUTING
Q206, 207 MUTING SWITCH
CN201 SYSTEM CONTROL
ANALOG BUS L
ANALOG BUS R
AU BUS GND
AU BUS
AC
AC
FOK
SENSE
SQCLK
SUBQ
SCOR
AMUTE
XLT
CLK
DATAA
DQGL
ASW
BS OUT
BS IN
RST OUT
DFCT SW
LD ON
X2
X1
IC205 CD SYSTEM CONTROL
DPCLK
CD BUSY
KEY REQ
DPDAT3
DPDAT2
DPDAT1
DPDAT0
Q205 AUDIO BUS SWITCH
D206
IC204 LOADING MOTOR DRIVE
CONTROL
LOAD OUT
LOAD IN
IN SW
OUT SW
ICSW
RESET
S292 LOAD IN
S291 LOAD OUT
IC203 +5V REG/RESET
RESET
OUT
IN
+5V
MUTE
AM/FM
ANALOG BUS CONTROL
AU BUS OUT
AU BUS IN
Q109 AUDIO BUS SWITCH
DPCLK (CD)
CD BUSY IN
KEY REQ (CD)
D3
D2
D1
D0
STEREO
SIGNAL (TUNED)
DATA I
DATA O
CLOCK
CE
X1
X2
X102 8.388MHz
IC104 SYSTEM CONTROL
CS
SCK
SDATA
RESET
X24C
CLOCK
DATA
BACK UP
RESET
POWER
KEY IN
KEY IN
LED (PRESET)
LED (TUNING)
KEY MATRIX S601-616
D601 (PRESET)
D602 (TUNING)
Q105 POWER SWITCH
+12V
FL601 FLUORESCENT INDICATOR TUBE
Q603 GRID DRIVER
IC601 LCD DRIVE
DIGI2
CS
SCK
SDATA
RESET
IC106 MEMORY
SCL
SDA
Q107, 108 RESET
IC105 RESET
Q102, 103, 104 +12V REG
+5V
+7V
-30V
IC801 -30V REG
D802
D801
T801 POWER TRANSFORMER
-5V
Q202 -5V REG
IC201 +5V/-5V REG
-5V
EC
-IN
+5V
CO
+IN
ON/OFF
D201
D202
D203
D204
D201-204 RECT
Q201 +5V REG
Q203, 204 POWER SWITCH
+13V
IC202 +7V REG
FL601 (F1, F2)

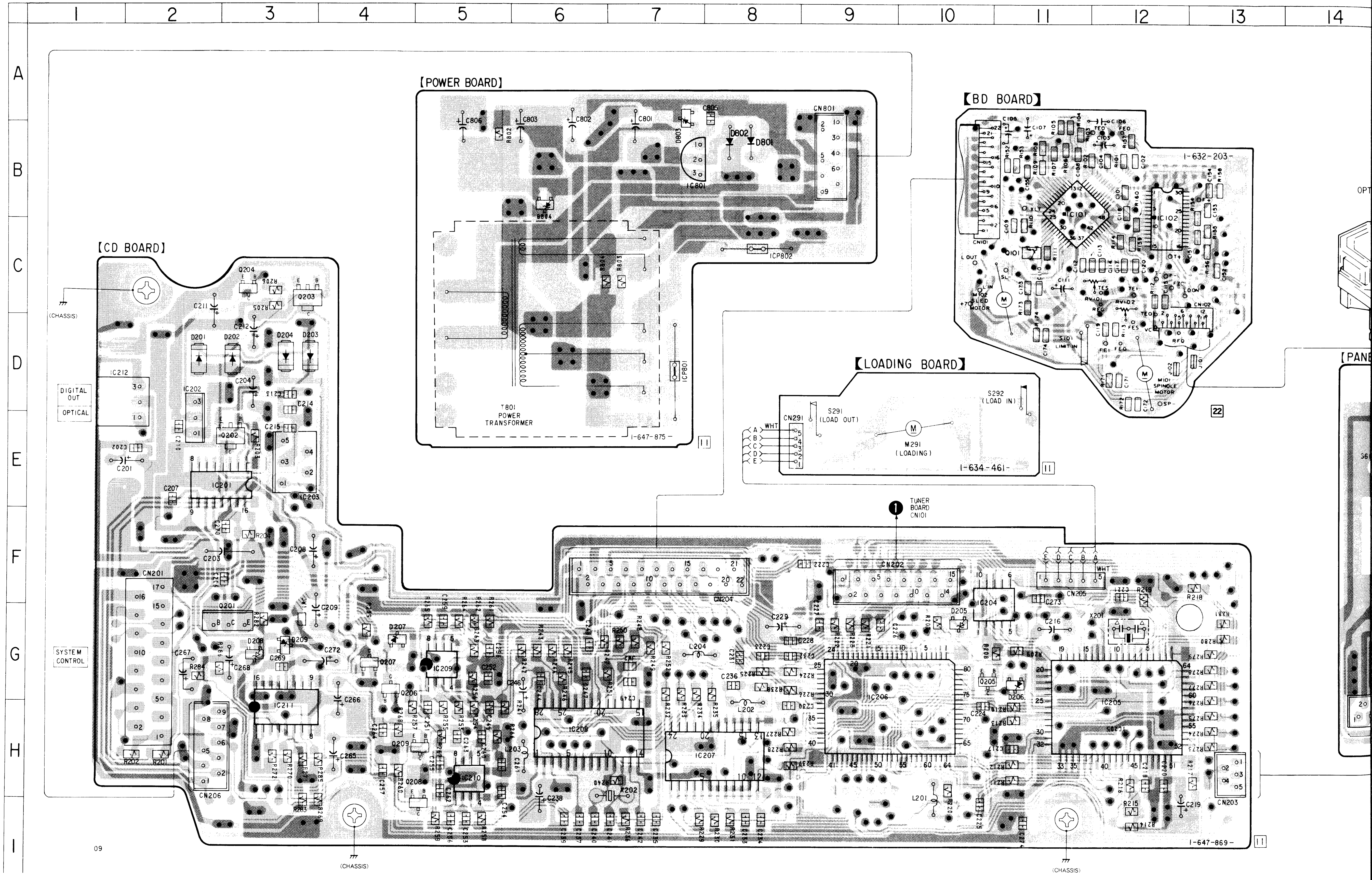
- Signal path.
  ⇨ : FM
  ▨ : CD
  ▨⟫ : digital out

4-4. PRINTED WIRING BOARDS
• CD SECTION
• See page 8 for Circuit Boards Location and Semiconductor Lead Layouts.

Notes on printed wiring boards:
- ○—— : Indicated a lead wire mounted on the component side.
- ■ : Parts mounted on the conductor side.
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.

• Semiconductor Location

Ref. No.	Location
D201	D-2
D202	D-3
D203	D-3
D204	D-3
D205	G-10
D206	G-11
D207	G-4
D208	G-3
D209	G-3
D601	F-15
D602	F-16
D801	B-8
D802	B-8
D803	B-7
D804	B-6
IC101	B-11
IC102	B-12
IC201	E-2
IC202	D-2
IC203	E-3
IC204	F-10
IC205	H-12
IC206	H-10
IC207	H-8
IC208	H-6
IC209	G-5
IC210	H-5
IC211	H-3
IC212	D-1
IC601	E-21
IC801	B-7
Q101	C-11
Q201	G-3
Q202	E-3
Q203	C-3
Q204	C-3
Q205	G-10
Q206	G-4
Q207	G-4
Q208	I-5
Q209	H-5
Q603	F-23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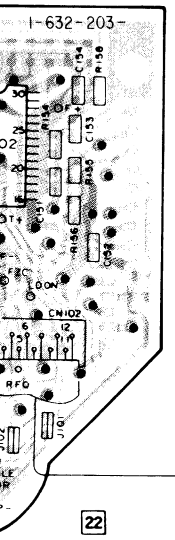
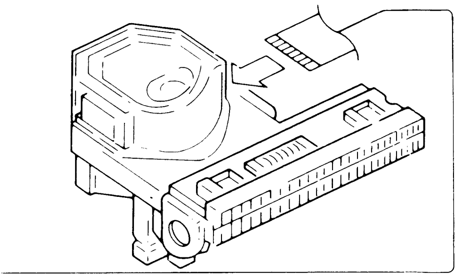
11
12
13
14
A
B
C
D
E
F
G
H
I
【POWER BOARD】
CN801
IC801
D801
D802
D803
D804
ICP802
ICP801
T801
POWER
TRANSFORMER
1-647-875-
11
【BD BOARD】
1-632-203-
IC101
IC102
CN101
CN102
M102
SLED
MOTOR
M101
SPINDLE
MOTOR
S101
LIMIT SW
RV101
RV102
22
【LOADING BOARD】
CN291
WHT
S291
(LOAD OUT)
S292
(LOAD IN)
M291
(LOADING)
1-634-461-
11
TUNER
BOARD
CN101
【CD BOARD】
(CHASSIS)
DIGITAL
OUT
OPTICAL
SYSTEM
CONTROL
IC212
IC202
IC201
IC203
IC211
IC209
IC210
IC208
IC207
IC206
IC205
IC204
CN201
CN202
CN203
CN204
CN205
CN206
X201
X202
L201
L202
L203
L204
1-647-869-
11
09
(CHASSIS)
(CHASSIS)
OPT
[PANE

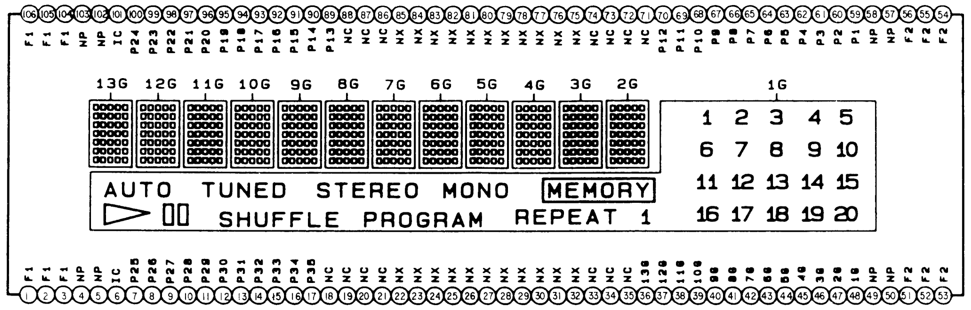
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28


1-632-203-
CN102
RFO
22

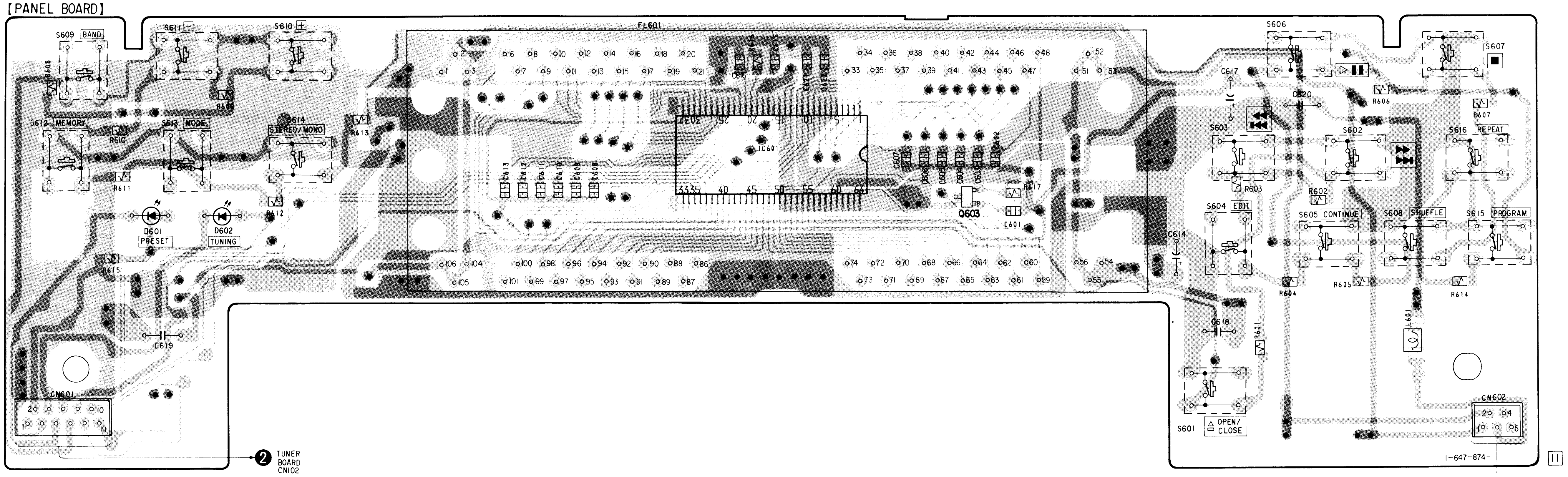
OPTICAL PICK-UP BLOCK
(KSS-240A)



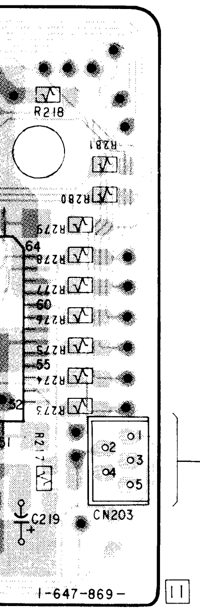
FL601
FLUORESCENT INDICATOR TUBE

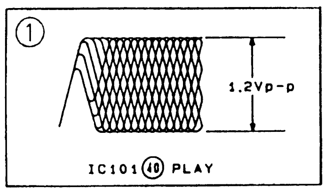

13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
AUTO TUNED STEREO MONO MEMORY
SHUFFLE PROGRAM REPEAT 1

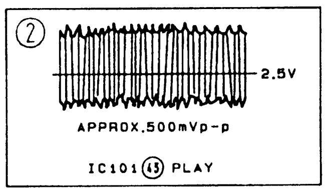
[PANEL BOARD]

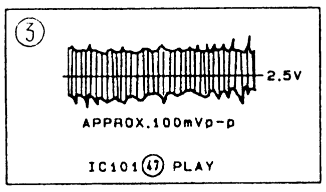

FL601
IC601
S609 BAND
S611 −
S610 +
S612 MEMORY
S613 MODE
S614 STEREO/MONO
D601 PRESET
D602 TUNING
R608
R609
R610
R611
R612
R613
R615
C619
CN601
Q603
C601
R617
S606
S607 ■
S603
S602
S616 REPEAT
S604 EDIT
S605 CONTINUE
S608 SHUFFLE
S615 PROGRAM
S601 △ OPEN/CLOSE
C617
C620
C614
C618
R601
R602
R603
R604
R605
R606
R607
R614
L601
CN602
1-647-874-
11

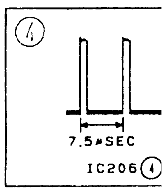
❷ TUNER BOARD CN102

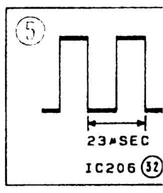

R218
R281
R280
R279
R276
R277
R275
R274
R273
R217
C219
CN203
1-647-869-
11

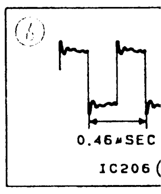






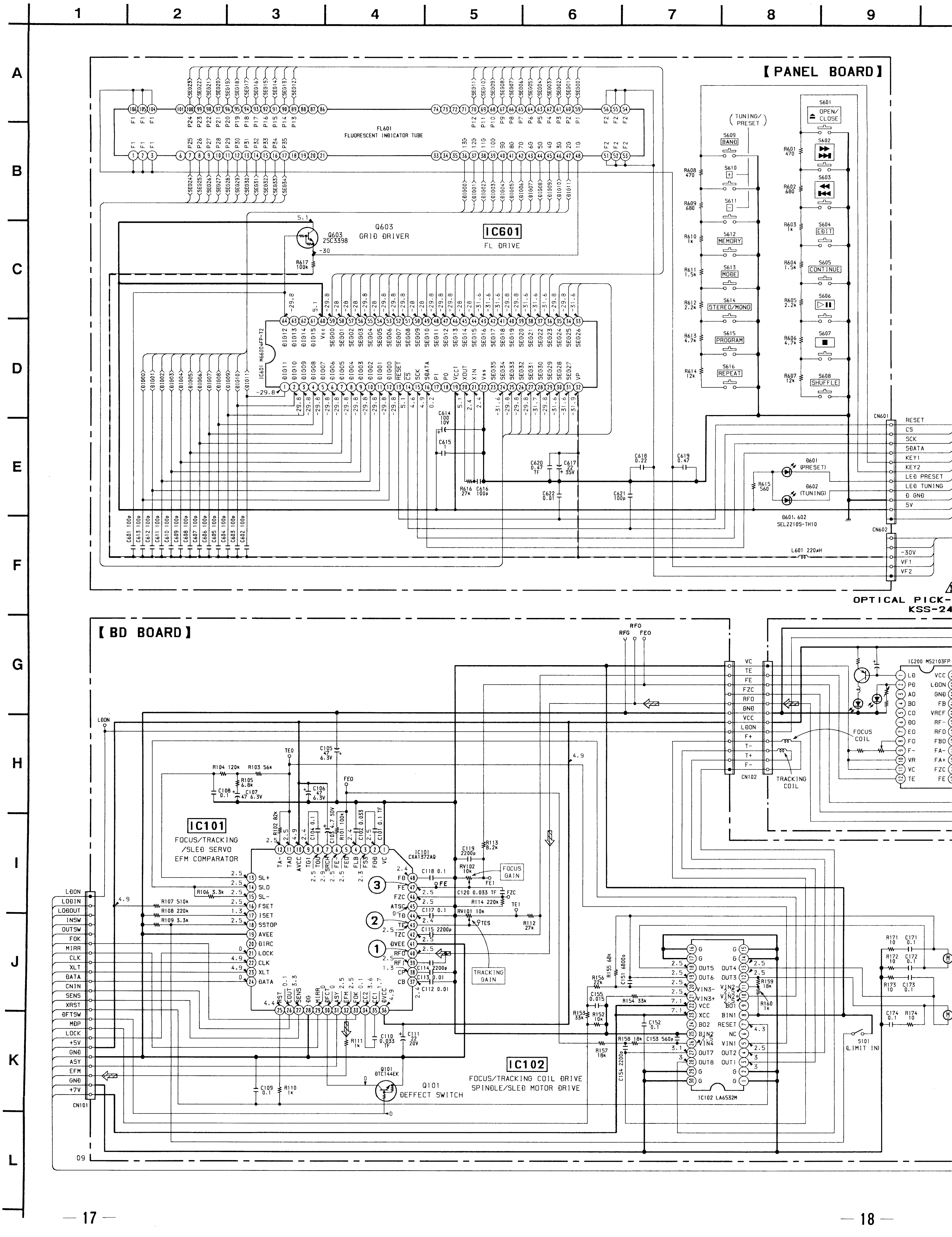






4-5. SCHEMATIC DIAGRAM

- CD SECTION
- See page 29, 30 and 31 for IC Block Diagrams.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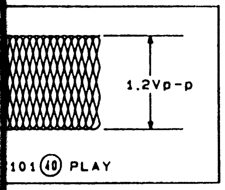
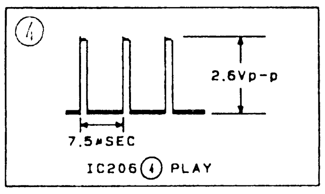
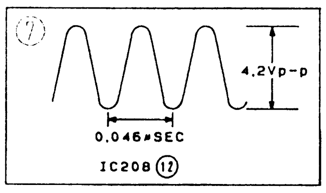
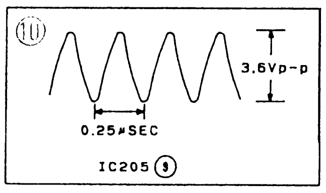
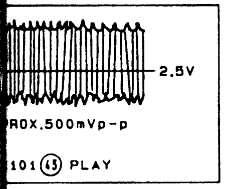
A
B
C
D
E
F
G
H
I
J
K
L
【PANEL BOARD】
FL601
FLUORESCENT INDICATOR TUBE
Q603
2SC3398
Q603
GRID DRIVER
IC601
FL DRIVE
IC601 M66004FP-T2
(TUNING/PRESET)
S601 OPEN/CLOSE
S602
S603
S604 EDIT
S605 CONTINUE
S606
S607
S608 SHUFFLE
S609 BAND
S610
S611
S612 MEMORY
S613 MODE
S614 STEREO/MONO
S615 PROGRAM
S616 REPEAT
D601 (PRESET)
D602 (TUNING)
D601, 602 SEL2210S-TH10
L601 220μH
CN601
RESET
CS
SCK
SDATA
KEY1
KEY2
LED PRESET
LED TUNING
D GND
5V
CN602
-30V
VF1
VF2
OPTICAL PICK-
KSS-24
【BD BOARD】
RFO
RFG
FEO
IC101
FOCUS/TRACKING /SLED SERVO EFM COMPARATOR
IC101 CXA1372AQ
FOCUS GAIN
TRACKING GAIN
IC102
FOCUS/TRACKING COIL DRIVE SPINDLE/SLED MOTOR DRIVE
IC102 LA6532M
Q101 DTC144EK
Q101 DEFFECT SWITCH
CN101
LDON
LDIN
LDOUT
INSW
OUTSW
FOK
MIRR
CLK
XLT
DATA
CNIN
SENS
XRST
DFTSW
MDP
LOCK
+5V
GND
ASY
EFM
GND
+7V
CN102
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T-
T+
F-
FOCUS COIL
TRACKING COIL
IC200 M52103FP
S101 (LIMIT IN)

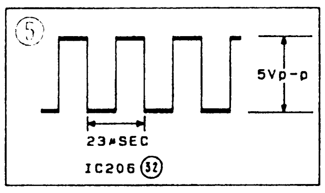

1.2Vp-p
101 ⑩ PLAY

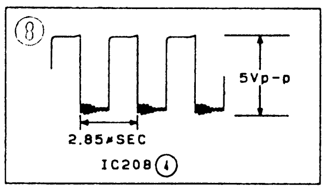

④
2.6Vp-p
7.5μSEC
IC206 ④ PLAY

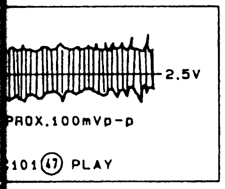

⑦
4.2Vp-p
0.046μSEC
IC208 ⑫

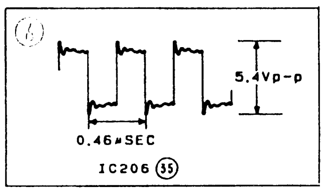

⑩
3.6Vp-p
0.25μSEC
IC205 ⑨

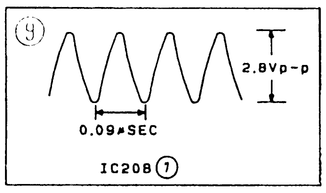

2.5V
ROX.500mVp-p
101 ⑬ PLAY

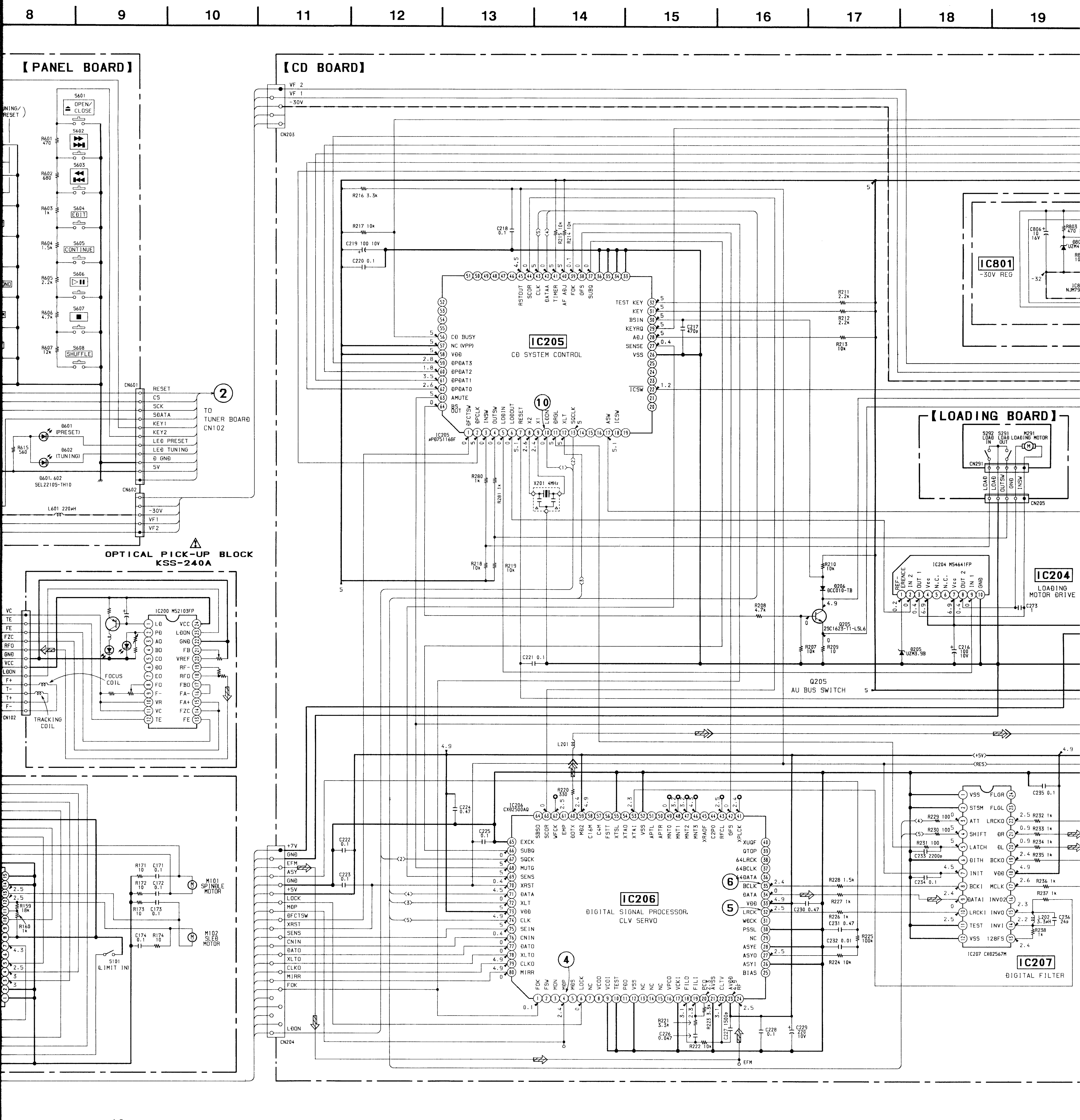

⑤
5Vp-p
23μSEC
IC206 ㉜


⑧
5Vp-p
2.85μSEC
IC208 ④


2.5V
ROX.100mVp-p
101 ⑰ PLAY


⑥
5.4Vp-p
0.46μSEC
IC206 ㉟


⑨
2.8Vp-p
0.09μSEC
IC208 ⑦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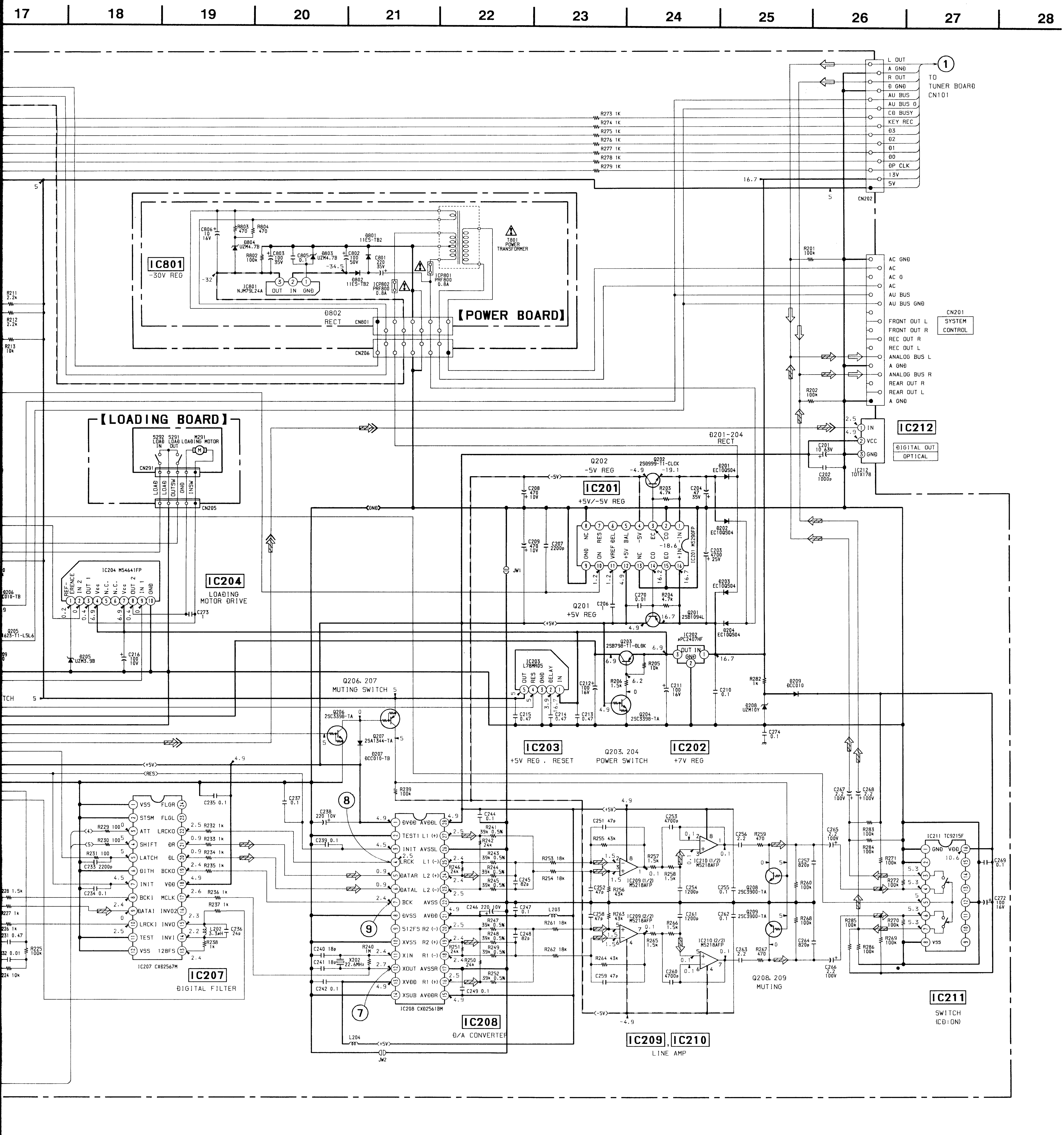
19
【PANEL BOARD】
【CD BOARD】
S601 OPEN/CLOSE
S602
S603
S604 EDIT
S605 CONTINUE
S606
S607
S608 SHUFFLE
R601 470
R602 680
R603 1k
R604 1.5k
R605 2.2k
R606 4.7k
R607 12k
CN601
RESET
CS
SCK
SDATA
KEY1
KEY2
LED PRESET
LED TUNING
D GND
5V
②
TO TUNER BOARD CN102
D601 (PRESET)
D602 (TUNING)
R615 560
D601, 602 SEL2210S-TH10
CN602
L601 220μH
-30V
VF1
VF2
OPTICAL PICK-UP BLOCK KSS-240A
IC200 M52103FP
FOCUS COIL
TRACKING COIL
CN102
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T-
T+
F-
VF 2
VF 1
-30V
CN203
R216 3.3k
R217 10k
C219 100 10V
C220 0.1
C218 0.1
IC205
CD SYSTEM CONTROL
IC205 μPD75116GF
CD BUSY
NC (VPP)
VDD
DPDAT3
DPDAT2
DPDAT1
DPDATO
AMUTE
BS OUT
TEST KEY
KEY
BSIN
KEYRQ
ADJ
SENSE
VSS
ICSW
C217 470p
R211 2.2k
R212 2.2k
R213 10k
X201 4MHz
R280 1k
R281 1k
R218 10k
R219 10k
IC801
-30V REG
【LOADING BOARD】
S292 LOAD IN
S291 LOAD OUT
M291 LOADING MOTOR
CN291
CN205
IC204 M54641FP
IC204
LOADING MOTOR DRIVE
C273
R210 10k
D206 DCC010-TB
R208 4.7k
Q205 2SC1623-T1-L5L6
R207 10k
R209 10
D205 UZM3.9B
C216 100 10V
C221 0.1
Q205
AU BUS SWITCH
L201
C224 0.47
R220 330
IC206 CXD2500AQ
IC206
DIGITAL SIGNAL PROCESSOR, CLV SERVO
C225 0.1
C222 0.1
C223 0.1
+7V
GND
EFM
ASY
GND
+5V
LOCK
MDP
DFCTSW
XRST
SENS
CNIN
DATO
XLTO
CLKO
MIRR
FOK
LDON
CN204
EXCK
SUBQ
SQCK
MUTG
SENS
XRST
DATA
XLT
VDD
CLK
SEIN
CNIN
DATO
XLTO
CLKO
MIRR
XUGF
GTOP
64LRCK
64BCLK
64DATA
BCLK
DATA
VDD
LRCK
WDCK
PSSL
NC
ASYE
ASYO
ASYI
BIAS
⑥
⑤
④
R228 1.5k
R227 1k
R226 1k
C230 0.47
C231 0.47
C232 0.01
R225 100k
R224 10k
R221 3.3k
C226 0.047
R222 10k
R223
C227 1500p
C228 0.1
C229 220 10V
EFM
R171 10
C171 0.1
R172 10
C172 0.1
R173 10
C173 0.1
C174 0.1
R174 10
M101 SPINDLE MOTOR
M102 SLED MOTOR
S101 (LIMIT IN)
R159 18k
R160 1k
<+5V>
<RES>
C235 0.1
VSS
STSM
ATT
SHIFT
LATCH
DITH
INIT
BCKI
DATAI
LRCKI
TEST
VSS
FLGR
FLGL
LRCKO
DR
DL
BCKO
VDD
MCLK
INVO2
INVO
INVI
128FS
R229 100
R230 100
R231 100
C233 2200p
C234 0.1
R232 1k
R233 1k
R234 1k
R235 1k
R236 1k
R237 1k
R238 1k
L202 3.3mH
C236
IC207 CX02567M
IC207
DIGITAL FILTER

Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : Internal component.
- ——— : B+ line
- - - - : B– line
- ☐ : Adjustment for repair.
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : CD, STOP
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : CD ⇨ : DIGITAL OUT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

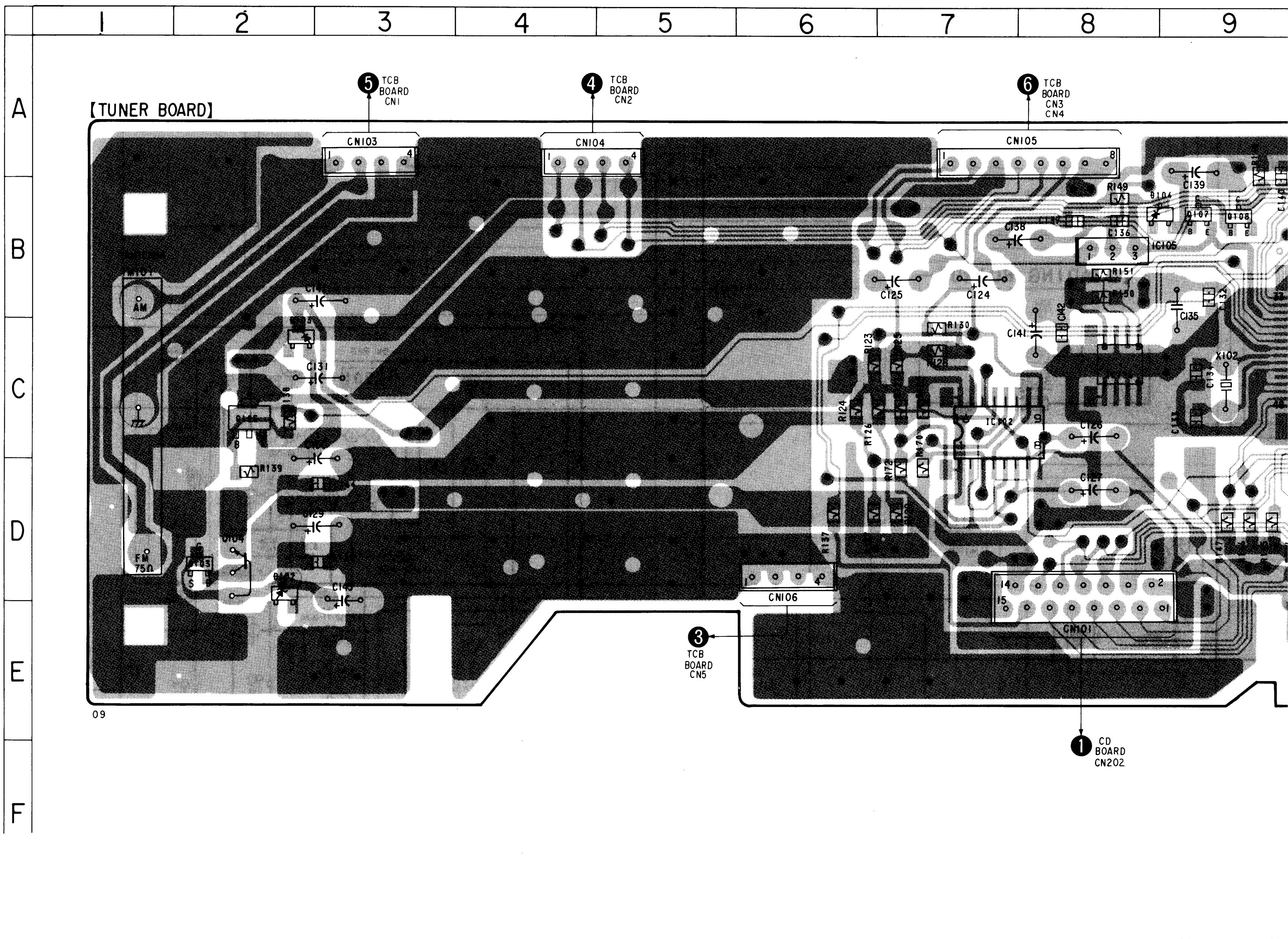


17
18
19
20
21
22
23
24
25
26
27
28
L OUT
A GND
R OUT
B GND
AU BUS
AU BUS G
CD BUSY
KEY REC
D3
D2
D1
D0
DP CLK
13V
5V
CN202
① TO TUNER BOARD CN101
R273 1k
R274 1k
R275 1k
R276 1k
R277 1k
R278 1k
R279 1k
16.7
IC801
-30V REG
IC801 NJM79L24A
OUT IN GND
D801 11ES-TB2
D802 11ES-TB2
D804 UZM4.7B
D803 UZM4.7B
C806 10 16V
R803 470
R804 470
R802 100k
C803 100 35V
C805 0.1
C802 100 50V
C801 220 35V
-34.5
-32
ICP801 PRF800 0.8A
ICP802 PRF800 0.8A
T801 POWER TRANSFORMER
D802 RECT
CN801
CN206
【POWER BOARD】
R211 2.2k
R212 2.2k
R213 10k
AC GND
AC
AC G
AC
AU BUS
AU BUS GND
FRONT OUT L
FRONT OUT R
REC OUT R
REC OUT L
ANALOG BUS L
A GND
ANALOG BUS R
REAR OUT R
REAR OUT L
A GND
CN201 SYSTEM CONTROL
R201 100k
R202 100k
IC212
DIGITAL OUT OPTICAL
IC212 TOTX178
C201 10 63V
C202 1000p
IN VCC GND
【LOADING BOARD】
S292 LOAD IN
S291 LOAD OUT
M291 LOADING MOTOR
CN291
CN205
LOAD OUTSW INSW
D201-204 RECT
Q202 -5V REG
Q202 2SD999-T1-CLCK
-4.9 -19.1
D201 EC10QS04
IC201
+5V/-5V REG
C208 470 10V
R203 4.7k
C204 47 35V
C209 470 10V
C207 2200p
IC201 M5290FP
D202 EC10QS04
-18.6
C203 4700 25V
D203 EC10QS04
JW1
IC204 M54641FP
IC204
LOADING MOTOR DRIVE
C273 1
Q201 +5V REG
C206 1
C270 0.01
R204 4.7k
Q201 2SB1094L
D204 EC10QS04
IC202 μPC2407HF
Q203 2SB798-T1-DLDK
R205 10k
R206 1.5k
C211 100 16V
C210 0.1
Q204 2SC3398-TA
IC203 L78MR05
C212 100 16V
C215 0.47
C214 0.47
C213 0.47
Q205 UZM3.9B
C216 100 10V
Q206, 207 MUTING SWITCH
Q206 2SC3398-TA
Q207 2SA1344-TA
D207 DCC010-TB
R282 1k
D209 DCC010
D208 UZM10Y
C274 0.1
IC203
+5V REG , RESET
Q203, 204 POWER SWITCH
IC202
+7V REG
C235 0.1
C237 0.1
VSS FLGR
STSM FLGL
ATT LRCKO
SHIFT DR
LATCH DL
DITH BCKO
INIT VDD
BCKI MCLK
DATAI INVO2
LRCKI INVO
TEST INVI
VSS 128FS
IC207 CXD2567M
IC207
DIGITAL FILTER
R229 100
R230 100
R231 100
C233 2200p
C234 0.1
R232 1k
R233 1k
R234 1k
R235 1k
R236 1k
R237 1k
L202 3.3μH
C236 24p
R238 1k
R225 100k
R239 100k
C238 220 10V
C239 0.1
⑧
⑨
⑦
DVDD AVDDL
TEST1 L1 (+)
INIT AVSSL
LRCK L1 (-)
DATAR L2 (+)
DATAL L2 (-)
BCK AVSS
DVSS AVDD
512FS R2 (-)
XVSS R2 (+)
XIN R1 (-)
XOUT AVSSR
XVDD R1 (+)
XSUB AVDDR
IC208 CXD2561BM
IC208
D/A CONVERTER
C240 18p
C241 18p
X202 22.6MHz
R240 1M
C242 0.1
L204
JW2
C244 0.1
R241 39k 0.5%
R242 24k
R243 39k 0.5%
R244 39k 0.5%
R245 39k 0.5%
R246 24k
C245 82p
C246 220 10V
C247 0.1
L203
R247 39k 0.5%
R248 39k 0.5%
R249 39k 0.5%
R250 24k
R251 24k
R252 39k 0.5%
C248 82p
C249 0.1
R253 18k
R254 18k
R261 18k
R262 18k
C251 47p
R255 43k
C253 4700p
R257 1.5k
R258 1.5k
IC209 (1/2) M5218AFP
IC210 (1/2) M5218AFP
C252 47p
R256 43k
C254 1200p
C255 0.1
Q208 2SC3900-TA
C256 2.2
R259 470
C257 820p
R260 100k
C258 47p
R263 43k
IC209 (2/2) M5218AFP
R266 1.5k
R265 1.5k
C261 1200p
C262 0.1
Q209 2SC3900-TA
IC210 (2/2) M5218AFP
R264 43k
C259 47p
C260 4700p
C263 2.2
R267 470
C264 820p
R268 100k
Q208, 209 MUTING
IC209, IC210
LINE AMP
C265 2.2 100V
C266 2.2 100V
C267 2.2 100V
C268 2.2 100V
R283 100k
R284 100k
R271 100k
R272 100k
R285 100k
R286 100k
R270 100k
R269 100k
IC211 TC9215F
GND VDD
VSS
C269 0.1
C272 100 16V
IC211
SWITCH (CD:ON)

4-6. PRINTED WIRING BOARD
• TUNER SECTION
• See page 8 for Circuit Boards Location and Semiconductor Lead Layouts.

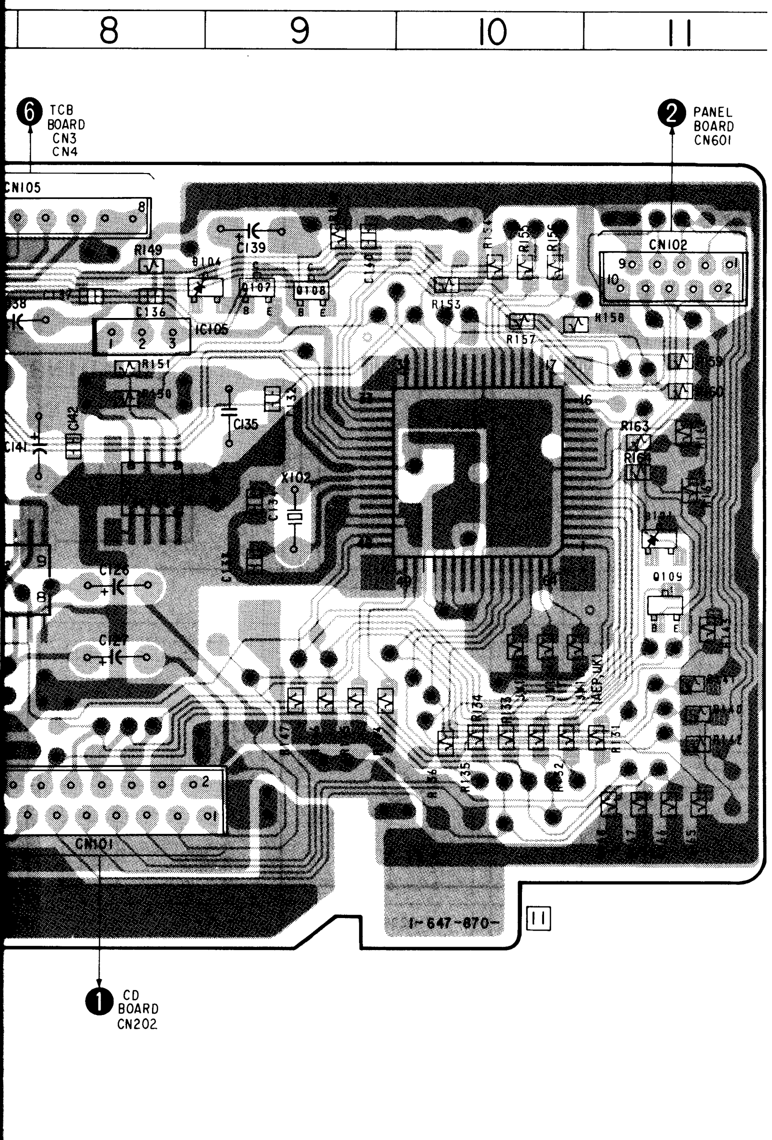
• Semiconductor Location

Ref. No.	Location
D101	C-11
D102	D-2
D103	C-2
D104	B-8
IC102	C-7
IC104	C-10
IC105	B-8
IC106	C-8
Q103	D-2
Q104	D-2
Q105	C-2
Q107	B-9
Q108	B-9
Q109	C-11


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
[TUNER BOARD]
⑤ TCB BOARD CN1
④ TCB BOARD CN2
⑥ TCB BOARD CN3 CN4
③ TCB BOARD CN5
❶ CD BOARD CN202
CN103
CN104
CN105
CN106
CN101
IC102
IC105
FM 75Ω
AM
C125
C124
C131
C136
C138
C139
C141
R149
R151
R139
R130
R123
R124
R137
X102
09

Notes on printed wiring boards:
- ○— : Indicated a lead wire mounted on the component side.
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- IT : Italian Model

Notes on sche
- All capacitor
  or less are n
- All resistors
- ━━ : B+ li
- Voltage are
  conditions.
- No mark : F
- Voltages are
  Voltage vari
  tolerances.
- Waveforms a
  Voltage vari
  tolerances.
- Signal path.
  ⇨ : FM
- IT : Italia


8
9
10
11
⑥ TCB BOARD CN3 CN4
② PANEL BOARD CN601
CN105
CN102
R149
C139
Q104
Q107
Q108
C136
IC105
R151
C135
C142
C141
X102
R153
R157
R158
R163
Q109
C128
C127
R134
R135
R136
R131
CN101
1-647-870-
11
❶ CD BOARD CN202

Notes on schematic diagram:

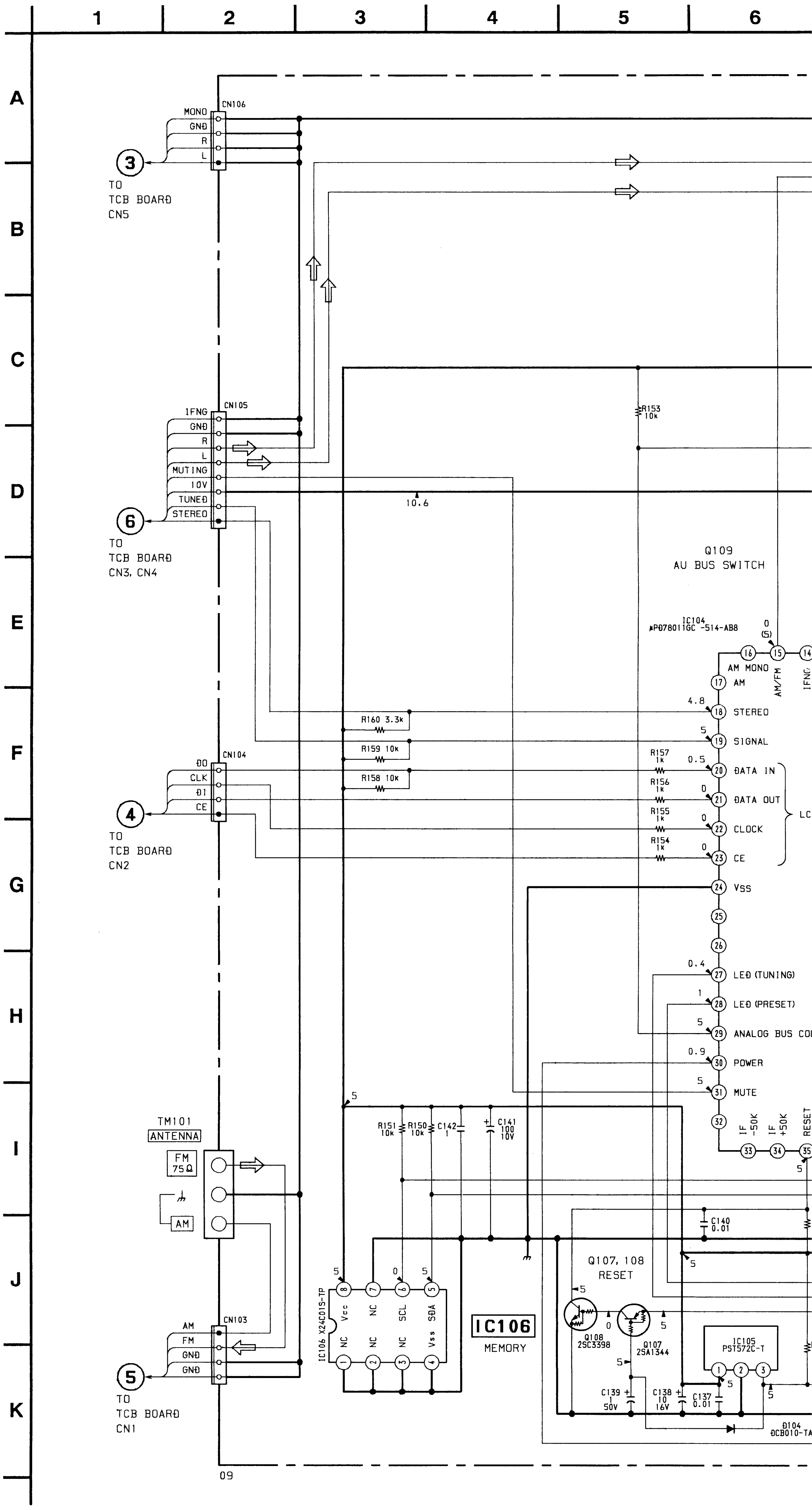
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.

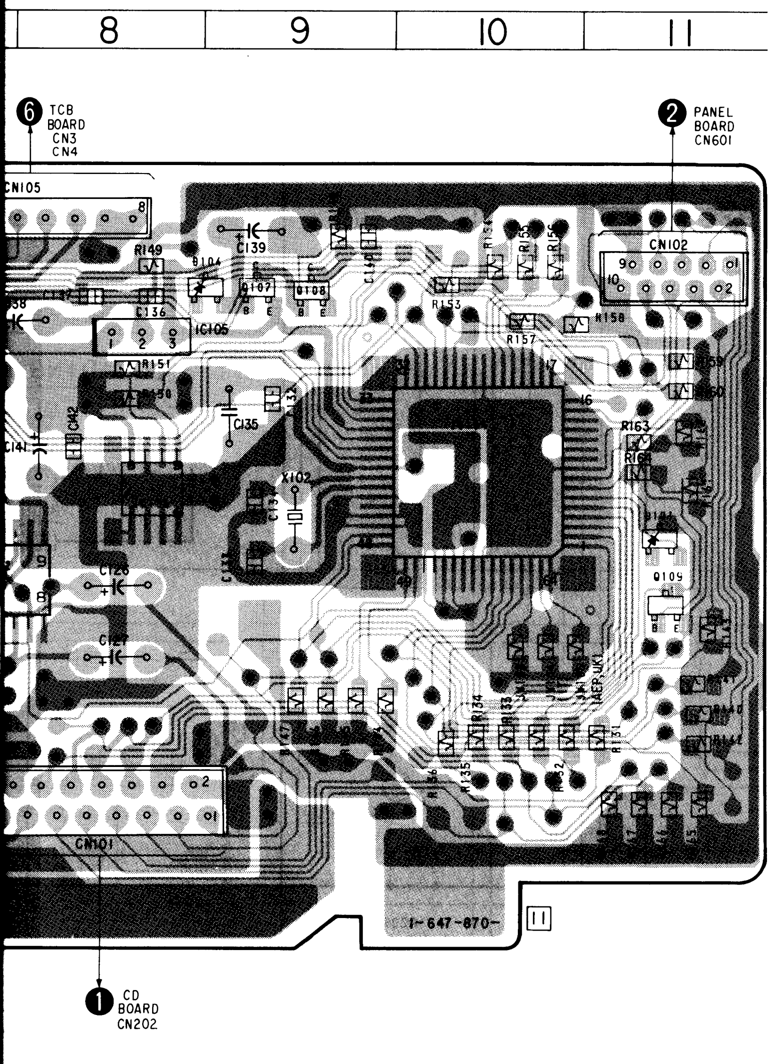
- ▬ : B+ line
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : FM
- Voltages are taken with a VOM (input impedance 10 MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- IT : Italian Model

4-7. SCHEMATIC DIAGRAM

• TUNER SECTION

• See page 29, 30 and 31 for IC Block Diagrams.


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
CN106
MONO
GND
R
L
③ TO TCB BOARD CN5
CN105
IFNG
GND
R
L
MUTING
10V
TUNED
STEREO
⑥ TO TCB BOARD CN3, CN4
10.6
R153 10k
Q109
AU BUS SWITCH
IC104
μPD78011GC -514-AB8
0
(5)
AM MONO
AM/FM
IFNG
AM
4.8
STEREO
5
SIGNAL
R157 1k
0.5
DATA IN
R156 1k
0
DATA OUT
R155 1k
0
CLOCK
R154 1k
0
CE
LC
VSS
0.4
LED (TUNING)
1
LED (PRESET)
5
ANALOG BUS CO
0.9
POWER
5
MUTE
IF -50K
IF +50K
RESET
5
CN104
DO
CLK
DI
CE
R160 3.3k
R159 10k
R158 10k
④ TO TCB BOARD CN2
TM101
ANTENNA
FM 75Ω
AM
CN103
AM
FM
GND
GND
⑤ TO TCB BOARD CN1
R151 10k
R150 10k
C142 1
C141 100 10V
C140 0.01
IC106 X24C01S-TP
Vcc
NC
SCL
SDA
NC
NC
NC
Vss
IC106
MEMORY
Q107, 108
RESET
Q108 2SC3398
Q107 2SA1344
IC105 PST572C-T
C139 1 50V
C138 10 16V
C137 0.01
D104 DCB010-TA
09


8
9
10
11
6 TCB BOARD CN3 CN4
2 PANEL BOARD CN601
CN105
CN102
R149
C139
Q104
Q107
Q108
C136
IC105
R151
C135
X102
R153
R157
R158
R163
Q109
C142
C141
C128
C127
CN101
1-647-870-
11
1 CD BOARD CN202

Notes on schematic diagram:

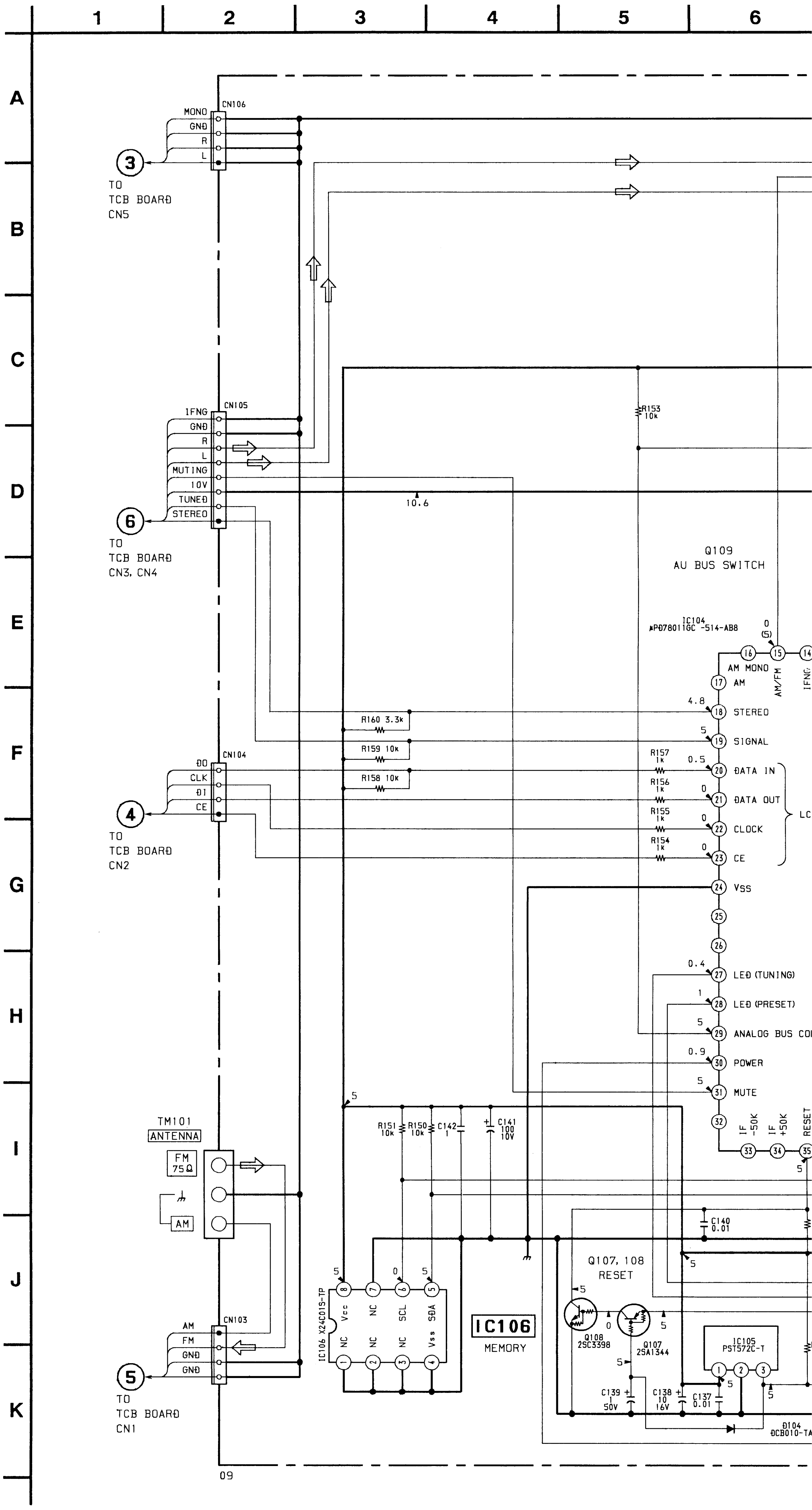
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.

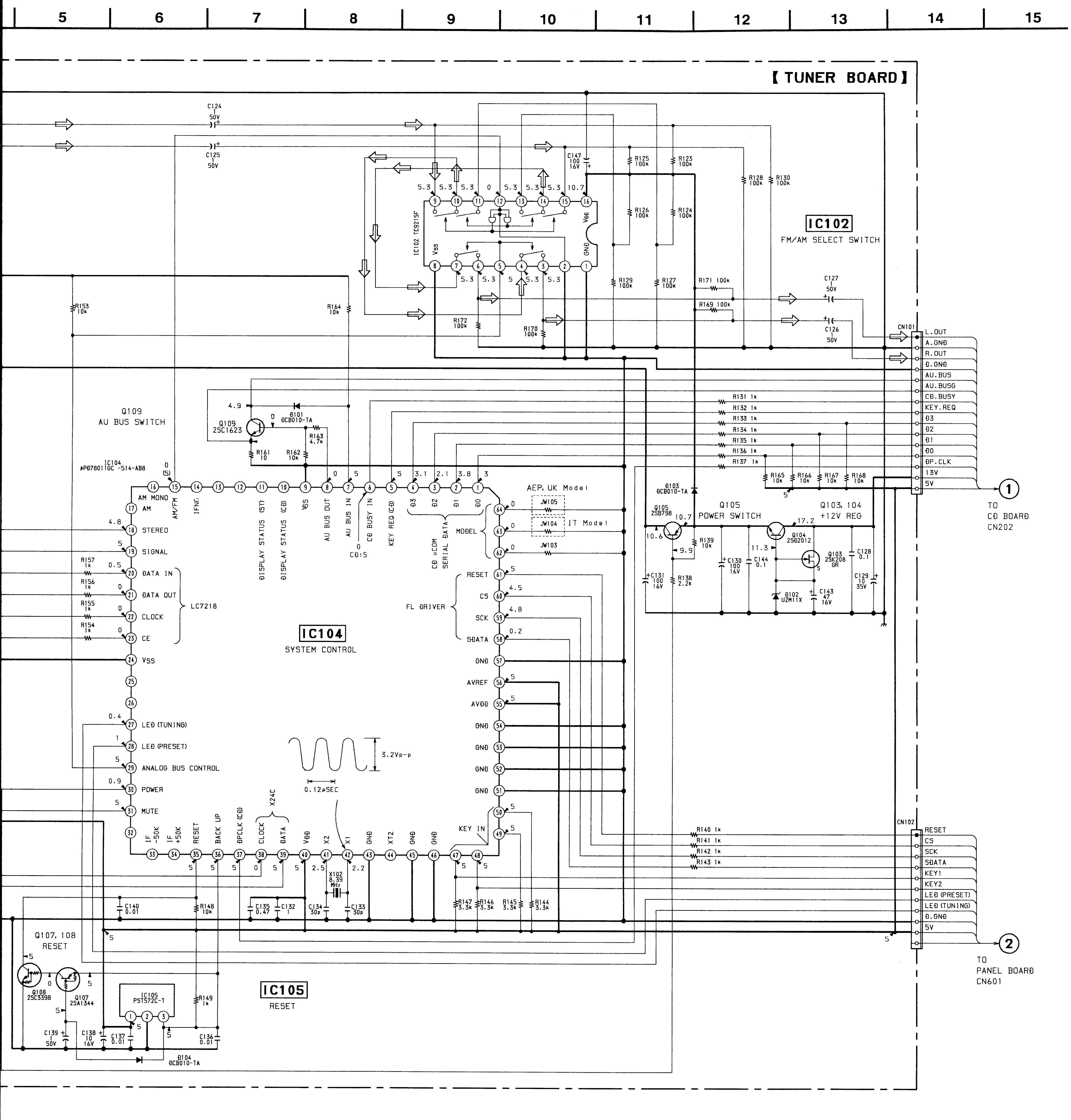
- ▬ : B+ line
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : FM
- Voltages are taken with a VOM (input impedance 10 MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- IT : Italian Model

4-7. SCHEMATIC DIAGRAM

• TUNER SECTION

• See page 29, 30 and 31 for IC Block Diagrams.

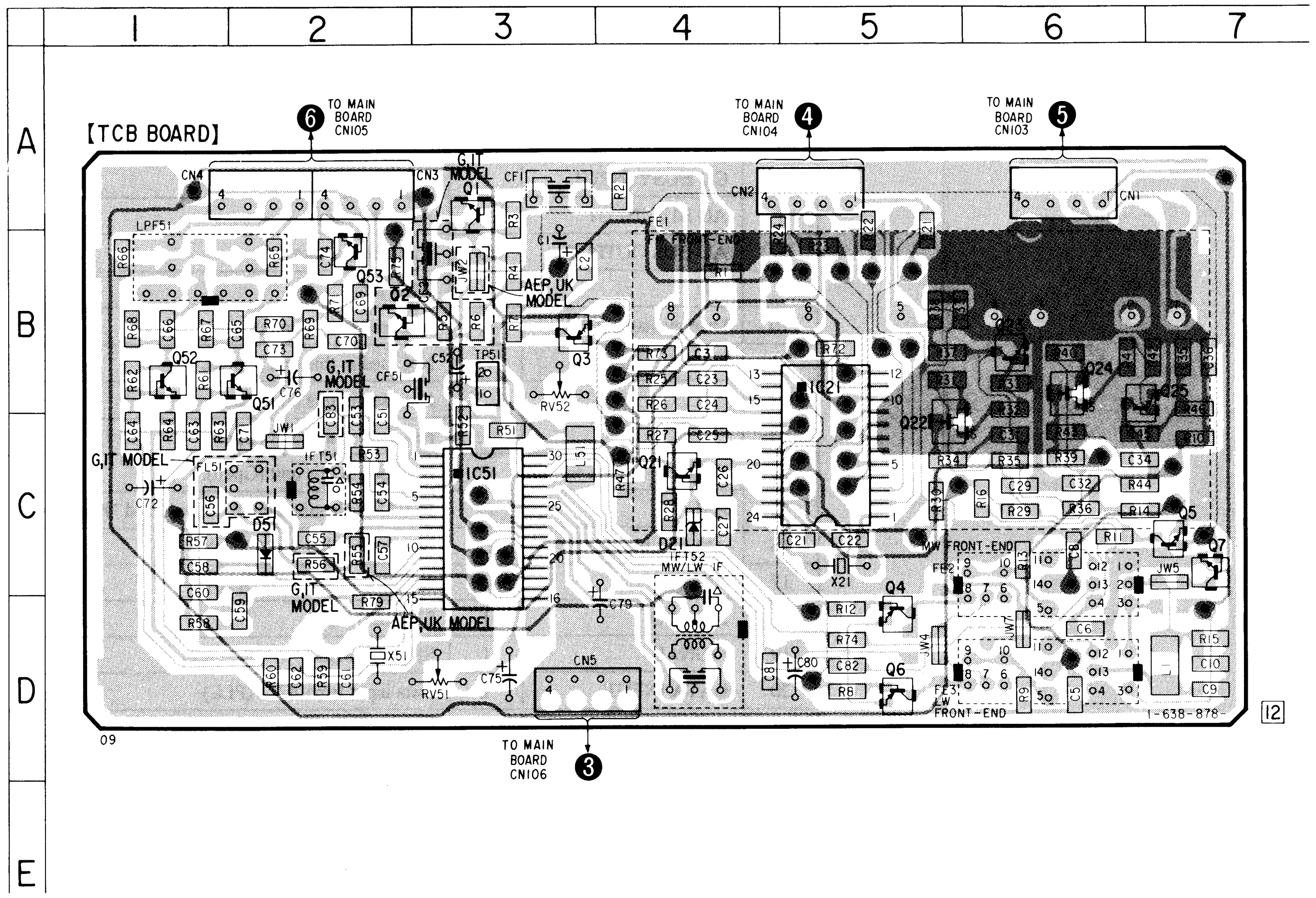

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
CN106
MONO
GND
R
L
3 TO TCB BOARD CN5
CN105
IFNG
GND
R
L
MUTING
10V
TUNED
STEREO
6 TO TCB BOARD CN3, CN4
10.6
R153 10k
Q109 AU BUS SWITCH
IC104 μPD78011GC-514-AB8
AM MONO
AM
STEREO
SIGNAL
DATA IN
DATA OUT
CLOCK
CE
VSS
LED (TUNING)
LED (PRESET)
ANALOG BUS CO
POWER
MUTE
AM/FM
IFNG
RESET
R160 3.3k
R159 10k
R158 10k
R157 1k
R156 1k
R155 1k
R154 1k
CN104
DO
CLK
DI
CE
4 TO TCB BOARD CN2
TM101 ANTENNA
FM 75Ω
AM
R151 10k
R150 10k
C142 1
C141 100 10V
C140 0.01
IC106 X24C01S-TP
Vcc
NC
SCL
SDA
Vss
IC106 MEMORY
Q107, 108 RESET
Q108 2SC3398
Q107 2SA1344
IC105 PST572C-T
C139 1 50V
C138 10 16V
C137 0.01
D104 DCB010-TA
CN103
AM
FM
GND
GND
5 TO TCB BOARD CN1
09


5
6
7
8
9
10
11
12
13
14
15
【TUNER BOARD】
C124 1 50V
C125 1 50V
C147 100 16V
R125 100k
R123 100k
R128 100k
R130 100k
R126 100k
R124 100k
IC102 TC9215F
VDD
GND
VSS
IC102
FM/AM SELECT SWITCH
R129 100k
R127 100k
R171 100k
R169 100k
C127 1 50V
C126 1 50V
R172 100k
R170 100k
R153 10k
R164 10k
CN101
L.OUT
A.GND
R.OUT
D.GND
AU.BUS
AU.BUSG
CD.BUSY
KEY.REQ
D3
D2
D1
D0
DP.CLK
13V
5V
R131 1k
R132 1k
R133 1k
R134 1k
R135 1k
R136 1k
R137 1k
R165 10k
R166 10k
R167 10k
R168 10k
TO CD BOARD CN202
Q109 AU BUS SWITCH
Q109 2SC1623
D101 DCB010-TA
R163 4.7k
R161 10
R162 10k
IC104 μPD78011GC-514-AB8
AM MONO
AM
STEREO
SIGNAL
DATA IN
DATA OUT
CLOCK
CE
LC7218
VSS
LED (TUNING)
LED (PRESET)
ANALOG BUS CONTROL
POWER
MUTE
R157 1k
R156 1k
R155 1k
R154 1k
AM/FM
IFNG
DISPLAY STATUS (ST)
DISPLAY STATUS (CD)
VSS
AU BUS OUT
AU BUS IN
CD BUSY IN
KEY REQ (CD)
D3
D2
D1
D0
CD:5
AEP, UK Model
JW105
JW104
IT Model
JW103
MODEL
CD μCOM SERIAL DATA
RESET
CS
SCK
SDATA
FL DRIVER
GND
AVREF
AVDD
KEY IN
IC104
SYSTEM CONTROL
3.2Vp-p
0.12μSEC
IF -50K
IF +50K
RESET
BACK UP
DPCLK (CD)
CLOCK
DATA
X24C
VDD
X2
X1
GND
XT2
X102 8.39 MHz
C134 30p
C133 30p
C135 0.47
C132 1
C140 0.01
R148 10k
R147 3.3k
R146 3.3k
R145 3.3k
R144 3.3k
D103 DCB010-TA
Q105 2SB798
Q105 POWER SWITCH
Q103, 104 +12V REG
Q104 2SD2012
Q103 2SK208 GR
R139 10k
R138 2.2k
C131 100 16V
C130 100 16V
C144 0.1
C128 0.1
C129 10 35V
C143 47 16V
D102 UZM11X
CN102
R140 1k
R141 1k
R142 1k
R143 1k
RESET
CS
SCK
SDATA
KEY1
KEY2
LED (PRESET)
LED (TUNING)
D.GND
5V
TO PANEL BOARD CN601
Q107, 108 RESET
Q108 2SC3398
Q107 2SA1344
IC105 PST572C-T
R149 1k
IC105
RESET
C139 1 50V
C138 10 16V
C137 0.01
C136 0.01
D104 DCB010-TA

4-8. PRINTED WIRING BOARD
• TCB SECTION
• See page 8 for Circuit Boards Location and Semiconductor Lead Layouts.

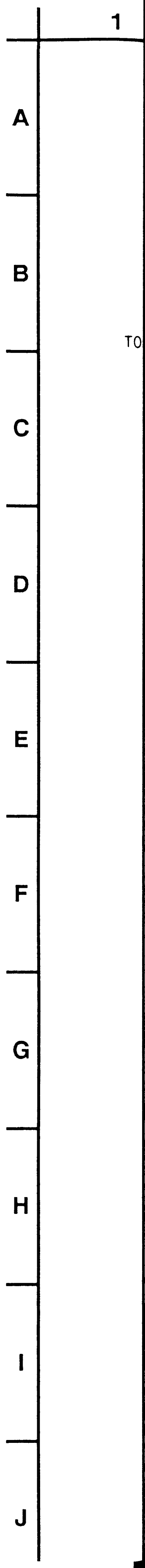
• Semiconductor Location

Ref. No.	Location
D21	C-4
D51	C-2
IC21	C-5
IC51	C-3
Q1	A-3
Q2	B-2
Q3	B-3
Q4	D-5
Q5	C-7
Q6	D-5
Q7	C-7
Q21	C-4
Q22	C-5
Q23	B-6
Q24	B-6
Q25	B-7
Q51	B-2
Q52	B-1
Q53	B-2


1
2
3
4
5
6
7
A
B
C
D
E
[TCB BOARD]
TO MAIN BOARD CN105
⑥
TO MAIN BOARD CN104
④
TO MAIN BOARD CN103
⑤
TO MAIN BOARD CN106
③
CN4
CN3
CN2
CN1
CN5
G,IT MODEL
AEP,UK MODEL
LPF51
FL51
IFT51
IFT52 MW/LW IF
IC51
IC21
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q21
Q22
Q23
Q24
Q25
Q51
Q52
Q53
D21
D51
X21
X51
RV51
RV52
TP51
FE1 FRONT-END
FE2 FM FRONT-END
FE3 LW FRONT-END
09
1-638-878-
12

Notes on printed wiring boards:
- o—— : Indicated a lead wire mounted on the component side.
- [ ]→ : Indicated side identified with part number.
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- G : Germany Model
- IT : Italian Model

4-9. SCHEM
• TCB S
• See p


1
A
B
C
D
E
F
G
H
I
J
TO

Notes on schematic diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : Internal component.

- ━━ : B+ line
- ☐ : Adjustment for repair.
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : FM, CD
  ( ) : MW
  〈 〉: LW
- Voltages are taken with a VOM (input impedance 10 MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- G : Germany Model
- IT : Italian Model

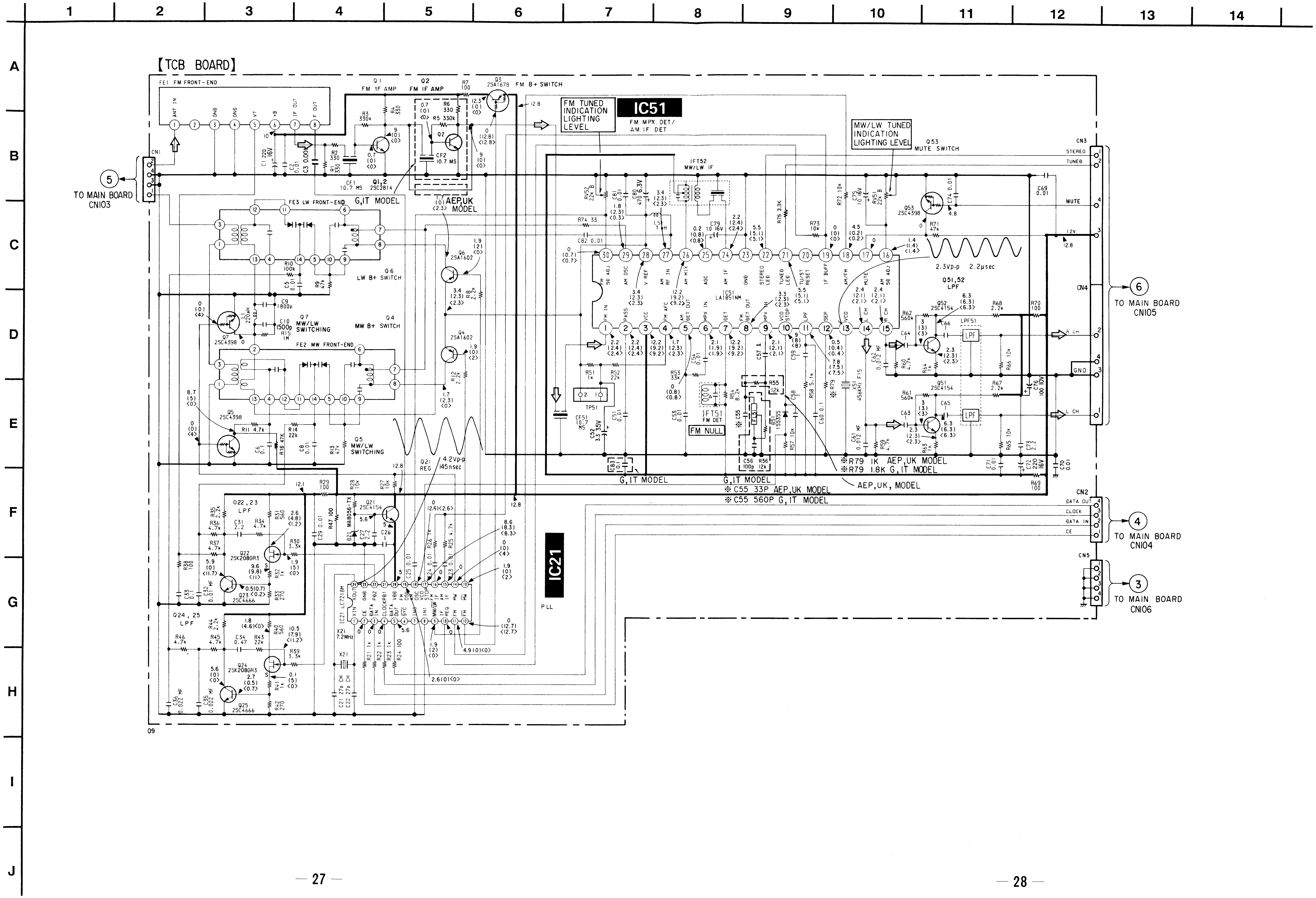
4-9. SCHEMATIC DIAGRAM
- TCB SECTION
- See page 29, 30 and 31 for IC Block Diagrams.

F 50WV
alums.
noted.

o-signal

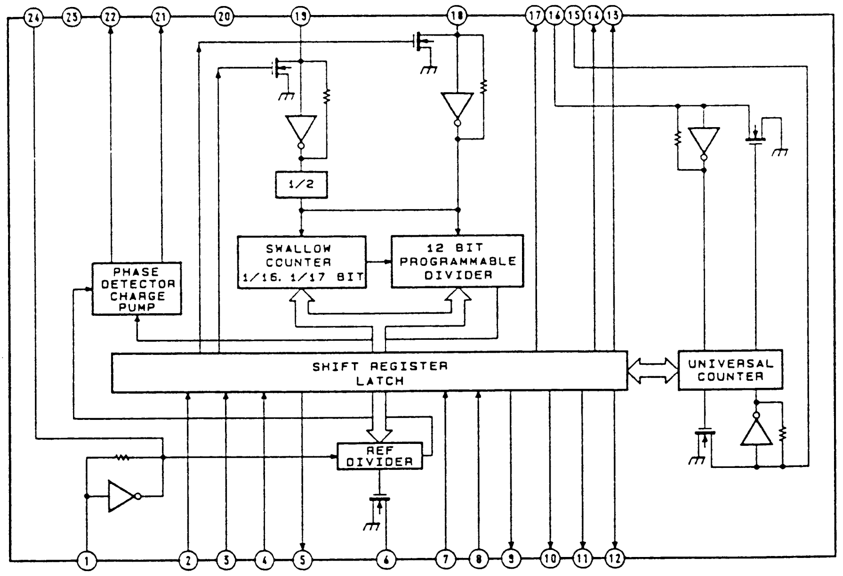
2).
oduction

oduction

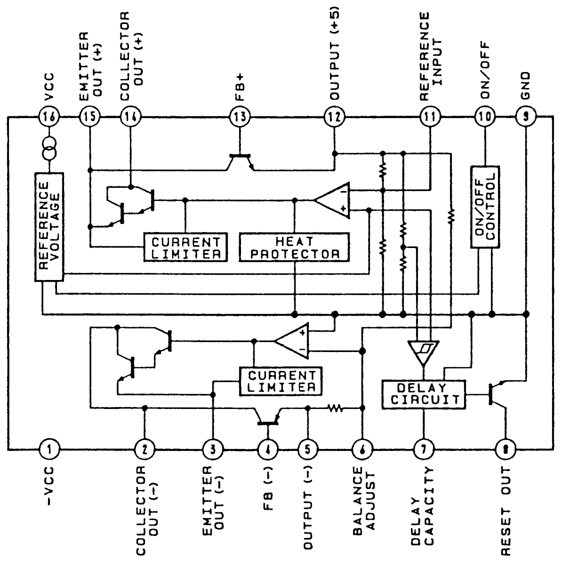

【TCB BOARD】
FE1 FM FRONT-END
Q1 FM IF AMP
Q2 FM IF AMP
Q3 2SA1678 FM B+ SWITCH
Q1,2 2SC2814
CF1 10.7 MS
CF2 10.7 MS
FM TUNED INDICATION LIGHTING LEVEL
IC51
FM MPX DET/ AM IF DET
IC51 LA1851NM
IFT52 MW/LW IF
IFT51 FM DET
FM NULL
MW/LW TUNED INDICATION LIGHTING LEVEL
Q53 MUTE SWITCH
Q53 2SC4398
CN1
CN2
CN3
CN4
CN5
TO MAIN BOARD CN103
TO MAIN BOARD CN105
TO MAIN BOARD CN104
TO MAIN BOARD CN106
STEREO
TUNED
MUTE
12V
R CH
GND
L CH
DATA OUT
CLOCK
DATA IN
CE
FE3 LW FRONT-END
G,IT MODEL
AEP,UK MODEL
Q6 LW B+ SWITCH
Q6 2SA1602
Q4 MW B+ SWITCH
Q4 2SA1602
Q7 MW/LW SWITCHING
Q7 2SC4398
FE2 MW FRONT-END
Q5 MW/LW SWITCHING
Q5 2SC4398
Q21 REG
Q21 2SC4154
4.2Vp-p 145nsec
D21 MA8056-TX
Q22,23 LPF
Q22 2SK208GR3
Q23 2SC4666
Q24,25 LPF
Q24 2SK208GR3
Q25 2SC4666
IC21 LC7218M
IC21
PLL
X21 7.2MHz
Q51,52 LPF
Q51 2SC4154
Q52 2SC4154
LPF51
LPF
2.3Vp-p 2.2μsec
X51 456kHz F15
※R79 1K AEP,UK MODEL
※R79 1.8K G,IT MODEL
※C55 33P AEP,UK MODEL
※C55 560P G,IT MODEL
AEP,UK, MODEL
TP51
09

4-10. IC BLOCK DIAGRAMS

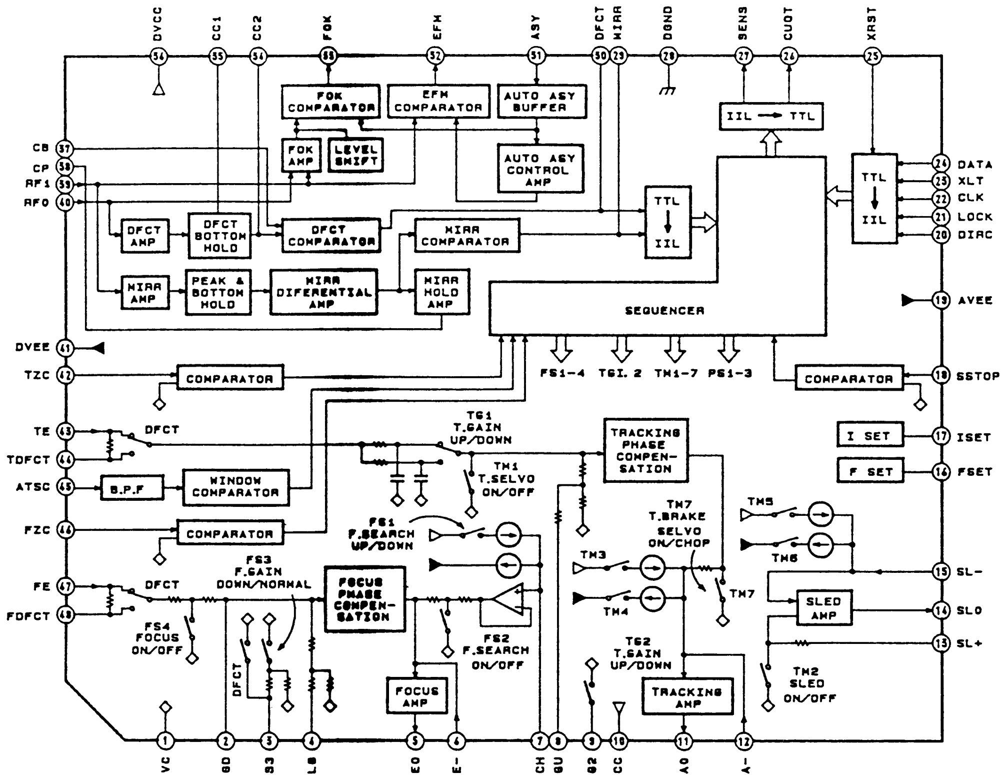
IC21 LC7218M


1/2
SWALLOW COUNTER 1/16, 1/17 BIT
12 BIT PROGRAMMABLE DIVIDER
PHASE DETECTOR CHARGE PUMP
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
REF DIVIDER

IC201 M5290FP


VCC
EMITTER OUT (+)
COLLECTOR OUT (+)
FB+
OUTPUT (+5)
REFERENCE INPUT
ON/OFF
GND
REFERENCE VOLTAGE
CURRENT LIMITER
HEAT PROTECTOR
ON/OFF CONTROL
CURRENT LIMITER
DELAY CIRCUIT
-VCC
COLLECTOR OUT (-)
EMITTER OUT (-)
FB (-)
OUTPUT (-)
BALANCE ADJUST
DELAY CAPACITY
RESET OUT

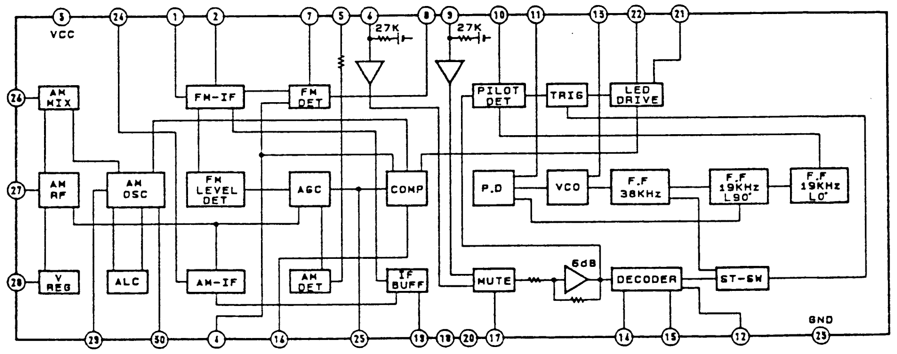
IC101 CXA1372AQ


DVCC
CC1
CC2
FOK
EFM
ASY
DFCT
MIRR
DGND
SENS
CUOT
XRST
FOK COMPARATOR
EFM COMPARATOR
AUTO ASY BUFFER
FOK AMP
LEVEL SHIFT
AUTO ASY CONTROL AMP
IIL → TTL
CB
CP
RF1
RFO
DFCT AMP
DFCT BOTTOM HOLD
DFCT COMPARATOR
MIRR COMPARATOR
TTL ↓ IIL
MIRR AMP
PEAK & BOTTOM HOLD
MIRR DIFERENTIAL AMP
MIRR HOLD AMP
SEQUENCER
DATA
XLT
CLK
LOCK
DIRC
AVEE
DVEE
TZC
COMPARATOR
FS1-4 TG1, 2 TM1-7 PS1-3
COMPARATOR
SSTOP
TE
TDFCT
ATSC
FZC
FE
FDFCT
DFCT
B.P.F
WINDOW COMPARATOR
COMPARATOR
TG1 T.GAIN UP/DOWN
TM1 T.SELVO ON/OFF
TRACKING PHASE COMPEN-SATION
I SET
ISET
F SET
FSET
FS1 F.SEARCH UP/DOWN
FS3 F.GAIN DOWN/NORMAL
FOCUS PHASE COMPEN-SATION
TM7 T.BRAKE SELVO ON/CHOP
TM5
TM6
TM3
TM4
TM7
SLED AMP
SL-
SLO
SL+
FS4 FOCUS ON/OFF
FS2 F.SEARCH ON/OFF
FOCUS AMP
TG2 T.GAIN UP/DOWN
TRACKING AMP
TM2 SLED ON/OFF
VC
FGD
FS3
FLB
FEO
FE-
SRCH
TGU
TG2
AVCC
TAO
TA-

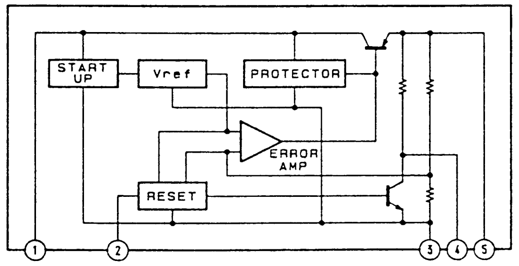
IC207

BCKI
DATAI
LRCKI

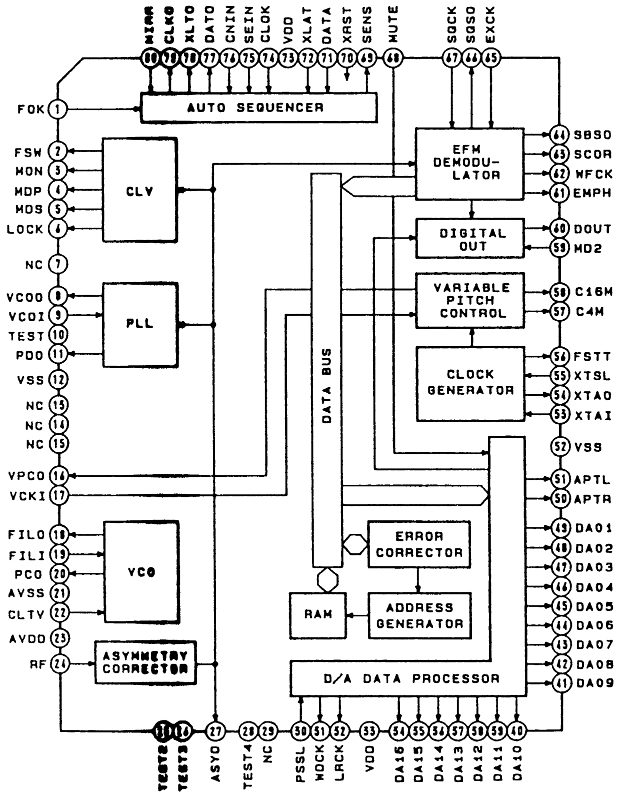
IC51 LA1851NM

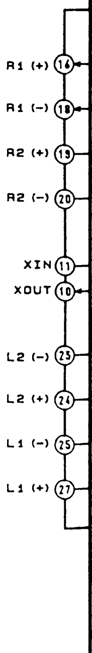

VCC
27K
27K
AM MIX
FM-IF
FM DET
PILOT DET
TRIG
LED DRIVE
AM RF
AM OSC
FM LEVEL DET
AGC
COMP
P.D
VCO
F.F 38KHz
F.F 19KHz L90°
F.F 19KHz L0°
V REG
ALC
AM-IF
AM DET
IF BUFF
MUTE
6dB
DECODER
ST-SW
GND

IC203 L78MR05

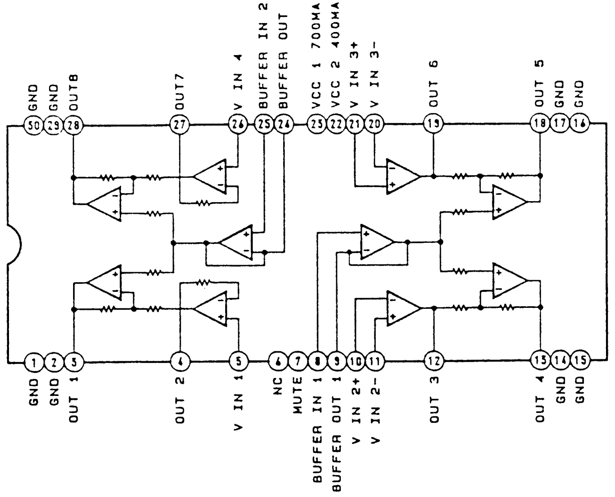

START UP
Vref
PROTECTOR
ERROR AMP
RESET

IC206 CXD2500BQ

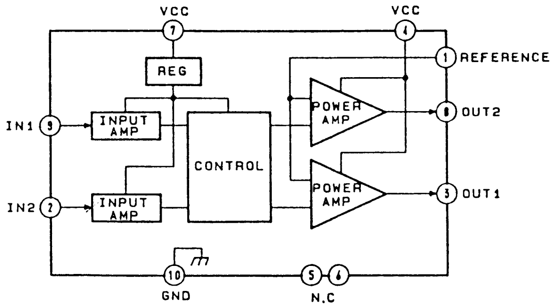

MIRR
CLKO
XLTO
DATO
CNIN
SEIN
CLOK
VDD
XLAT
DATA
XRST
SENS
MUTE
SQCK
SQSO
EXCK
FOK
AUTO SEQUENCER
FSW
MON
MDP
MDS
LOCK
CLV
NC
VCOO
VCOI
TEST
PDO
PLL
VSS
NC
NC
NC
VPCO
VCKI
FILO
FILI
PCO
AVSS
CLTV
AVDD
RF
VCO
ASYMMETRY CORRECTOR
EFM DEMODU-LATOR
SBSO
SCOR
WFCK
EMPH
DIGITAL OUT
DOUT
MD2
VARIABLE PITCH CONTROL
C16M
C4M
CLOCK GENERATOR
FSTT
XTSL
XTAO
XTAI
DATA BUS
VSS
APTL
APTR
ERROR CORRECTOR
RAM
ADDRESS GENERATOR
D/A DATA PROCESSOR
DA01
DA02
DA03
DA04
DA05
DA06
DA07
DA08
DA09
TEST2
TEST3
ASYO
TEST4
NC
PSSL
WDCK
LRCK
VDD
DA16
DA15
DA14
DA13
DA12
DA11
DA10

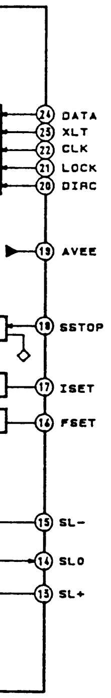

R1 (+)
R1 (-)
R2 (+)
R2 (-)
XIN
XOUT
L2 (-)
L2 (+)
L1 (-)
L1 (+)

IC102 LA6532M

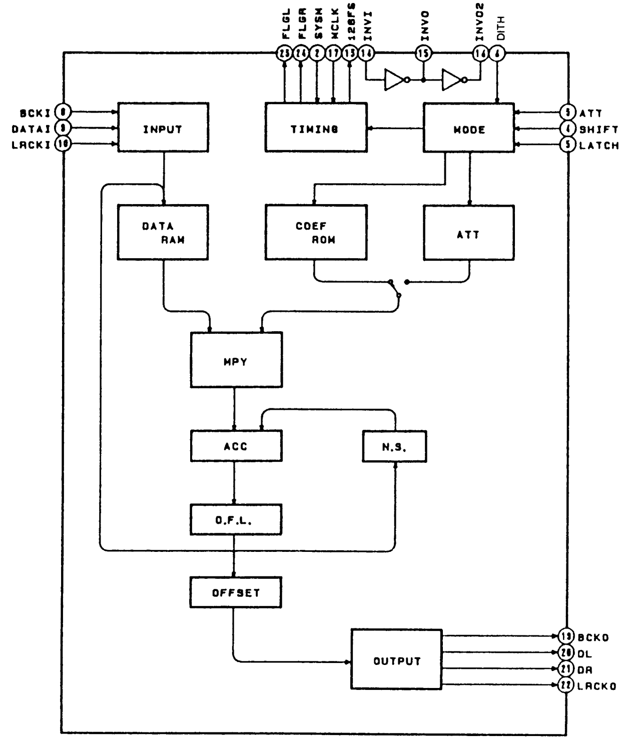

GND
GND
OUT8
OUT7
V IN 4
BUFFER IN 2
BUFFER OUT 2
VCC 1 700MA
VCC 2 400MA
V IN 3+
V IN 3-
OUT 6
OUT 5
GND
GND
GND
GND
OUT 1
OUT 2
V IN 1
NC
MUTE
BUFFER IN 1
BUFFER OUT 1
V IN 2+
V IN 2-
OUT 3
OUT 4
GND
GND

IC204 M54641FP

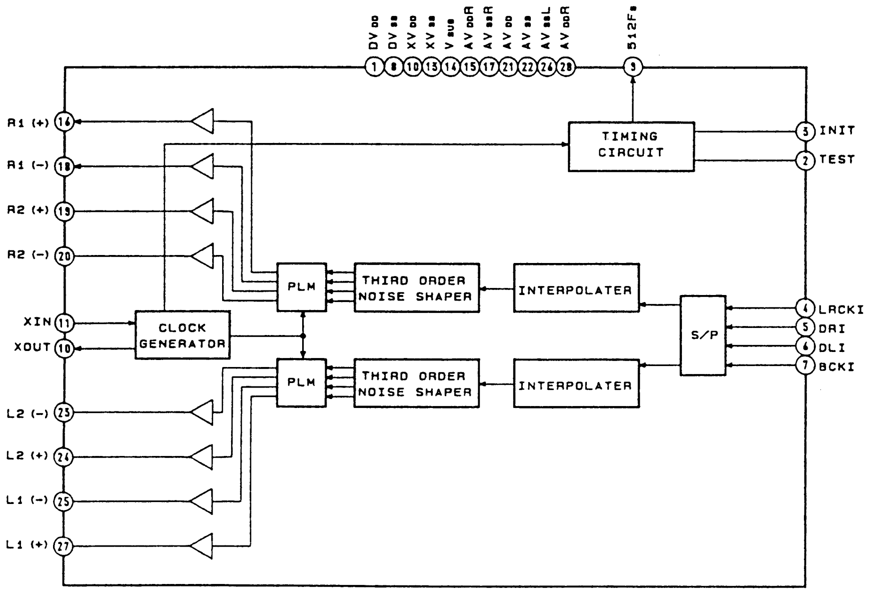

VCC
VCC
REFERENCE
REG
IN1
INPUT AMP
CONTROL
POWER AMP
OUT2
IN2
INPUT AMP
POWER AMP
OUT1
GND
N.C


24 DATA
23 XLT
22 CLK
21 LOCK
20 DIRC
19 AVEE
18 SSTOP
17 ISET
16 FSET
15 SL-
14 SLO
13 SL+

IC207 CXD2567M


FLGL 23
FLGR 24
SYSM 2
MCLK 17
128FS 13
INVI 14
INVO 15
INVO2 16
DITH 6
BCKI 8
DATAI 9
LRCKI 10
INPUT
TIMING
MODE
ATT 3
SHIFT 4
LATCH 5
DATA RAM
COEF ROM
ATT
MPY
ACC
N.S.
O.F.L.
OFFSET
OUTPUT
19 BCKO
20 DL
21 DR
22 LRCKO

IC208 CXD2561BM


DVDD 1
DVSS 8
XVDD 10
XVSS 13
VSUB 14
AVDDR 15
AVSSR 17
AVDD 21
AVSS 22
AVSSL 26
AVDDR 28
512Fs 9
TIMING CIRCUIT
3 INIT
2 TEST
R1 (+) 16
R1 (-) 18
R2 (+) 19
R2 (-) 20
XIN 11
XOUT 10
CLOCK GENERATOR
PLM
THIRD ORDER NOISE SHAPER
INTERPOLATER
S/P
4 LRCKI
5 DRI
6 DLI
7 BCKI
PLM
THIRD ORDER NOISE SHAPER
INTERPOLATER
L2 (-) 23
L2 (+) 24
L1 (-) 25
L1 (+) 27

SECTION 5
IC PIN FUNCTIONS

- **IC104 Tuner System Controller (µPD78011GC-514-AB8)**

No.	Name	I/O	Function
1	D0	I/O	Data input/output terminal with IC205 (CD system controller).
2	D1	I/O	Data input/output terminal with IC205 (CD system controller).
3	D2	I/O	Data input/output terminal with IC205 (CD system controller).
4	D3	I/O	Data input/output terminal with IC205 (CD system controller).
5	KEY REQ (CD)	O	Key data output timing. (CD)
6	CD BUSY INPUT	I	CD condition input.
7	AU BUS INPUT	I	Audio bus input.
8	AU BUS OUTPUT	O	Audio bus output.
9	Vss	–	GND pin.
10	Display status (CD)	O	Not used in this unit (Open).
11	Display status (ST)	O	Not used in this unit (Open).
12			Not used in this unit (Open).
13			Not used in this unit (Open).
14	IFOK	O	Not used in this unit (Open).
15	AM/FM	O	FM/AM selection output. "Low": FM "High": AM
16	AM forcible mono	O	Not used in this unit (Open).
17	AM	O	Not used in this unit (Open).
18	STEREO	I	STEREO input.
19	SIGNAL	I	SIGNAL input.
20	DATA INPUT	I	Data input from IC21 (PLL).
21	DATA OUTPUT	O	Data output to IC21 (PLL).
22	CLOCK	O	CLOCK output to IC21 (PLL).
23	CE	O	CE output to IC21 (PLL).
24	Vss	–	GND pin.
25			Not used in this unit (Open).
26			Not used in this unit (Open).
27	LED (TUNING)	O	Tuner "+"/"–" key mode LED output.
28	LED (PRESET)	O	Tuner "+"/"–" key mode LED output.
29	Analog bus control	O	Analog bus control output of IC102 (TC9215F-TP1).
30	POWER	O	Power output. "Low": ON "High": OFF
31	MUTE	O	Muting output. "Low": ON "High": OFF
32			Not used in this unit (Open).
33	IF –50K	I	IF offset input.
34	IF +50K	I	IF offset input.
35	RESET	I	Reset input.
36	BACK UP	I	Backup input.
37	DPCLK (CD)	I	CD display data timing input.
38	CLOCK	O	CLOCK output to IC106 (MEMORY).
39	DATA	I/O	Data input/output with IC106 (MEMORY).
40	VDD	–	Power supply pin (+5V).

No.	Name	I/O	Function
41	X2		Main clock.
42	X1	I	Main clock (8.38 MHz).
43	GND	–	GND pin.
44	XT2	–	Not used in this unit (Open).
45	GND	–	GND pin.
46	GND	–	GND pin.
47	Key input	I	Key input.
48	Key input	I	Key input.
49	Key input	I	Not used in this unit (+5V).
50	Key input	I	Not used in this unit (+5V).
51	GND	–	GND pin.
52	GND	–	GND pin.
53	GND	–	GND pin.
54	GND	–	GND pin.
55	AVDD	–	Power supply pin (+5V).
56	AVREF	–	Power supply pin (+5V).
57	GND	–	GND pin.
58	SDATA	O	Data output to IC601 (FL driver).
59	SCK	O	CLOCK output to IC601 (FL driver).
60	CS	O	CS output to IC601 (FL driver).
61	RESET	O	Reset output to IC601 (FL driver).
62	Destination	I	Destination determination input.
63	Destination	I	Destination determination input.
64	Destination	I	Destination determination input.

- **IC205 CD SYSTEM CONTROLLER (µPD75116GF-G38-3BE)**

Controls IC101 (RF signal processing•servo), IC102 (DSP•digital filter) and loading, replaces data with IC104 (system controller), performs audio bus input, etc. of the CD section.

No.	Name	I/O	Function
1	DFCTSW	O	IC101 (CXA1372Q) DEFECT circuit ON/OFF selection output.
2	DPCLK	O	Display data transmission clock output to IC104 (µPD78011GC-514-AB8).
3	INSW	I	S292 (loading-in switch) input.
4	OUTSW	I	S291 (loading-out switch) input.
5	LODIN	O	Output rotating M291 (loading motor) in loading-in direction. *1
6	LODOUT	O	Output rotating M291 (loading motor) in loading-out direction. *1
7	RESET	I	System reset input.
8	X2	I	Clock input.
9	X1	I	Clock input. (4 MHz)
10	LDON	O	Optical pickup laser diode on/off selection output. "High": ON
11	PRGL	O	Latch output to IC207 (digital filter).
12	XLT	O	Serial data latch output to IC206 (CXD2500BQ).
13	SQCLK	O	Sub-code Q data reading clock output to IC206 (CXD2500BQ).
14			Not used in this unit (Open).
15			Not used in this unit (Open).
16			Not used in this unit (Open).
17	ANASW	O	Analog bus control signal output of IC211 (TC9215F-TP1).
18	ICSW	I/O	CD power supply control pin. OFF: 0 output ON: Input (High impedance condition)
19			Not used in this unit (Open). (Same function as ICSW).
20			Not used in this unit (Open). (Same function as ICSW).
21			Not used in this unit (Open). (Same function as ICSW).
22	IVICSW	I/O	CD power supply control terminal. OFF: Input (High impedance condition) ON: 0 output
23			Not used in this unit (Open). (Same function as IVICSW).
24			Not used in this unit (Open). (Same function as IVICSW).
25			Not used in this unit (Open). (Same function as IVICSW).
26	Vss		GND pin.
27	SENSE	I	SENSE input from IC206 (CXD2500BQ).
28	ADJ	I	CD test mode input 1. Continues rotating the spindle motor even if the GFS check is not performed or no frame sync is output in PLAY, PAUSE, SEARCH at "Low".
29	KEYRQ	I	Key code input trigger from IC104 (µPD78012GC-514-AB8). (Four falling edges for each key)
30	BSIN	I	Audio bus input.
31	ADKEY	I	AD key input pin. On the assumption that electrical adjustments are carried out with only the CD (no tuner microprocessor). (Normally 5V pull-up)
32	ADSEL	I	AD key input permission selection pin.
33			Not used in this unit (GND).
34			Not used in this unit (GND).
35			Not used in this unit (GND).
36			Not used in this unit (GND).
37	SUBQ	I	Sub-code Q data input from IC206 (CXD2500BQ).
38	GFS	I	GFS signal input from IC206 (CXD2500BQ). "Low": NG "High": OK
39	FOK	I	Focus OK signal input from IC101 (CXA1372Q). "High": OK
40	AFADJ	I	CD test mode input 2.

No.	Name	I/O	Function
41	DACSW	I	IC208 (D/A converter) select pin. When DACSW: 1, CXD2561 When DACSW: 0, CXD2562
42	DATAA	O	Serial data output to IC206 (CXD2500BQ), IC207 (CXD2567M).
43	CLK	O	Serial data transmission clock output to IC206 (CXD2500BQ), IC207 (CXD2567M).
44	SCOR	I	Sub-code sync S0+S1 detection input from IC206 (CXD2500BQ).
45	RSTOUT	O	Reset output to vicinity ICs.
46			Not used in this unit (Open).
47			Not used in this unit (Open).
48			Not used in this unit (Open).
49			Not used in this unit (Open).
40			Not used in this unit (Open).
51			Not used in this unit (Open).
52			Not used in this unit (Open).
53			Not used in this unit (Open).
54			Not used in this unit (Open).
55			Not used in this unit (Open).
56	CDBUSY	O	CD ON: "High".
57	NC	–	Not used in this unit (+5V).
58	VDD	–	Power supply pin (+5V).
59	DPDAT 3	I/O	Key data input and display data output with IC104 (μPD78012GC-514-AB8).
60	DPDAT 2	I/O	Key data input and display data output with IC104 (μPD78012GC-514-AB8).
61	DPDAT 1	I/O	Key data input and display data output with IC104 (μPD78012GC-514-AB8).
62	DPDAT 0	I/O	Key data input and display data output with IC104 (μPD78012GC-514-AB8).
63	AMUTE	O	Muting control output. "High": Mute
64	BSOUT	O	Audio bus output pin.

*1 Loading motor control

	IN	OUT	BRAKE
LOG OUT ⑥	L	H	H
LOG IN ⑤	H	L	H

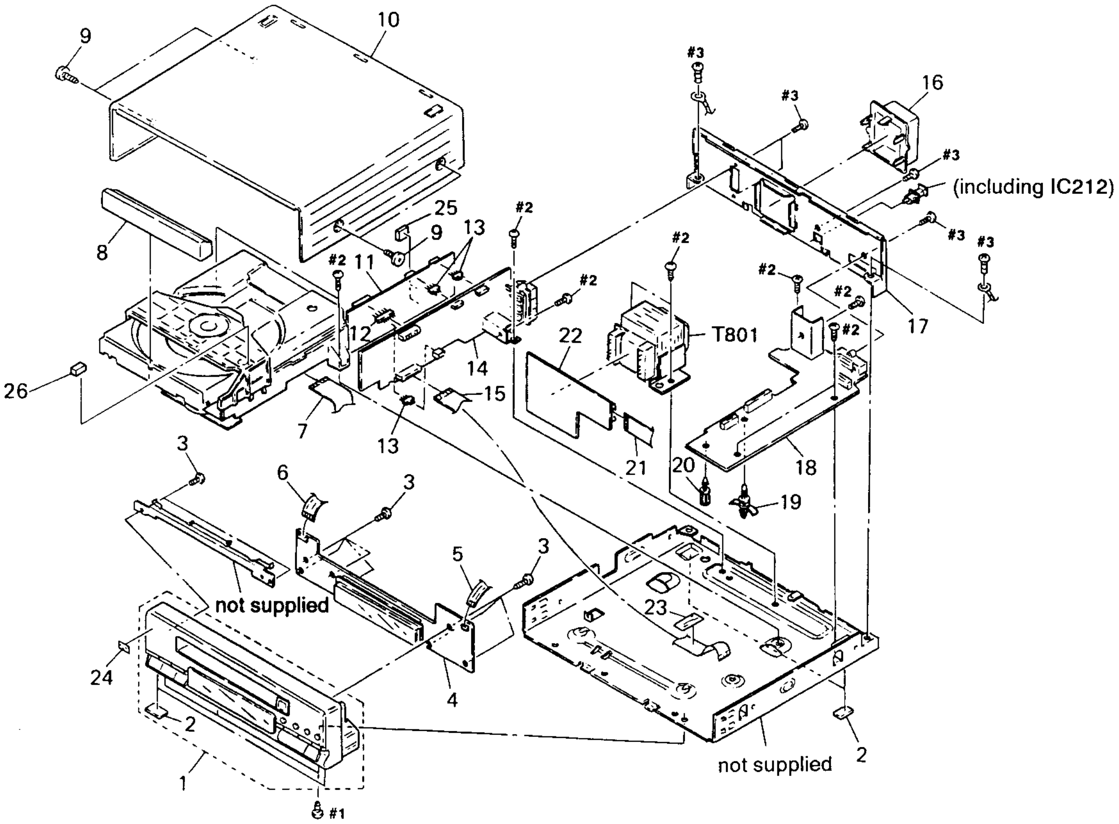
SECTION 6
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Italian, Germany model is abbreviated as IT, G.

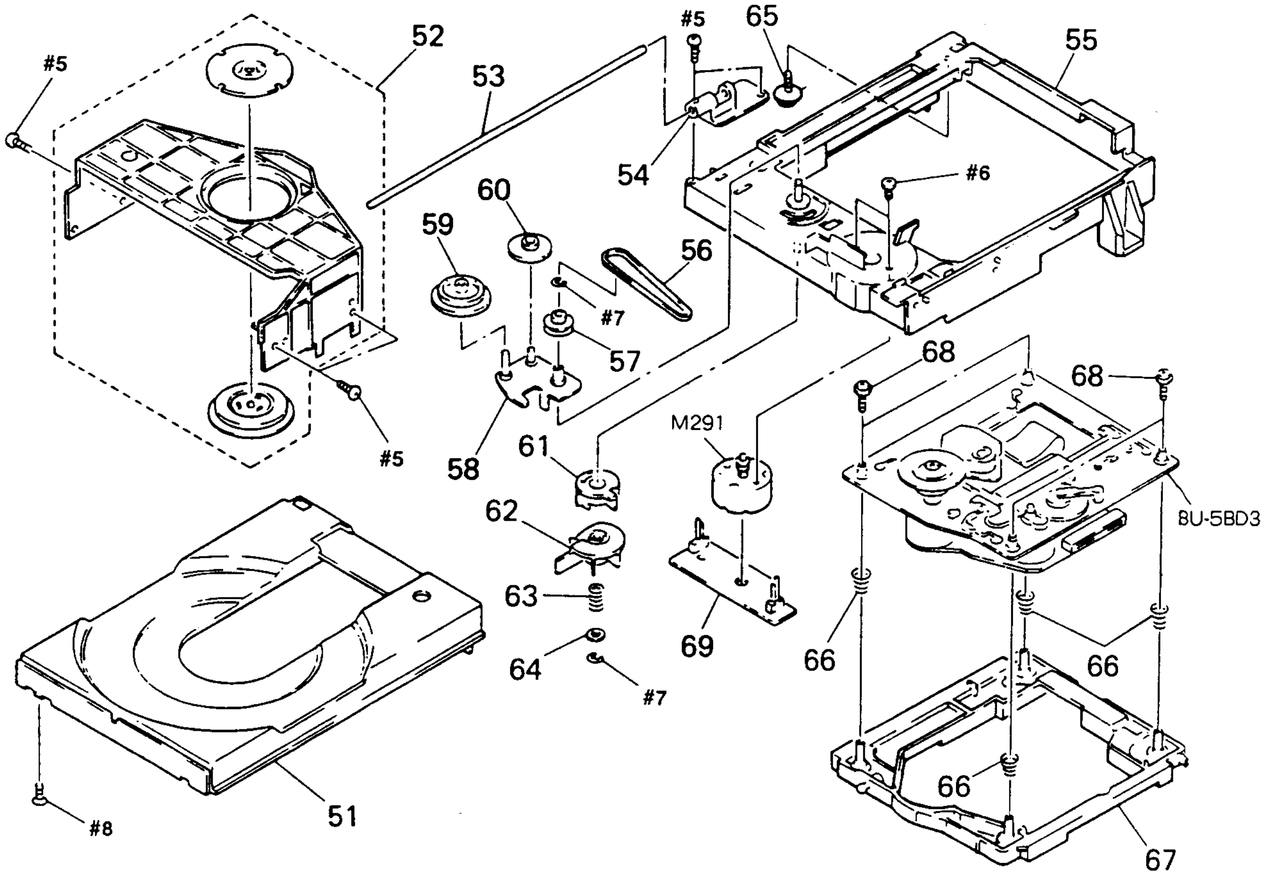
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
1	X-4943-000-1	PANEL ASSY, FRONT	
2	4-930-336-31	FOOT (FELT)	
3	4-951-620-01	SCREW (2.6X8), +BVTP	
* 4	A-4360-227-A	PANEL BOARD, COMPLETE (AEP, UK)	
	A-4360-731-A	PANEL BOARD, COMPLETE (G)	
*	A-4360-735-A	PANEL BOARD, COMPLETE (IT)	
5	1-696-738-11	WIRE (FLAT TYPE) (5 CORE)	
6	1-696-739-11	WIRE (FLAT TYPE) (11 CORE)	
7	1-690-753-11	WIRE (FLAT TYPE) (22 CORE)	
8	4-955-030-01	PANEL (LOADING)	
9	3-363-099-21	SCREW (CASE 3 TP2) (AEP)	
	3-704-366-01	SCREW (CASE) (M3X8) (UK, G, IT)	
* 10	4-954-198-01	CASE	
* 11	A-4304-343-A	TCB BOARD, COMPLETE (AEP, UK)	
*	A-4304-448-A	TCB BOARD, COMPLETE (G, IT)	
* 12	1-695-810-11	CONNECTOR, PC BOARD (PLUG) 8P	
* 13	1-695-809-11	CONNECTOR, PC BOARD (PLUG) 4P	
14	A-4360-730-A	TUNER BOARD, COMPLETE (G)	
*	A-4360-226-A	TUNER BOARD, COMPLETE (AEP, UK)	
*	A-4360-734-A	TUNER BOARD, COMPLETE (IT)	
15	1-696-740-11	WIRE (FLAT TYPE) (15 CORE)	
* 16	4-954-186-01	COVER (T)	
* 17	4-955-031-01	PANEL (HCD), BACK (UK, G, IT)	
*	4-955-031-31	PANEL (HCD), BACK (AEP)	
18	A-4360-729-A	CD BOARD, COMPLETE (G)	
* 18	A-4360-225-A	CD BOARD, COMPLETE (AEP, UK)	
*	A-4360-733-A	CD BOARD, COMPLETE (IT)	
* 19	4-924-098-11	HOLDER, PC BOARD	
* 20	3-669-610-00	SPACER	
21	1-696-750-11	WIRE (FLAT TYPE) (9 CORE)	
22	A-4360-228-A	POWER BOARD, COMPLETE (AEP, UK)	
*	A-4360-732-A	POWER BOARD, COMPLETE (G)	
*	A-4360-736-A	POWER BOARD, COMPLETE (IT)	
23	4-860-518-00	CUSHION	
24	3-703-710-41	STICKER, SONY SYMBOL (12)	
* 25	3-561-427-21	CUSHION	
26	3-884-171-00	STOPPER	
⚠*T801	1-423-378-11	TRANSFORMER, POWER	

6-2. CD MECHANISM SECTION-1 (CDM13B-5BD3)


#5
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M291
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BU-5BD3
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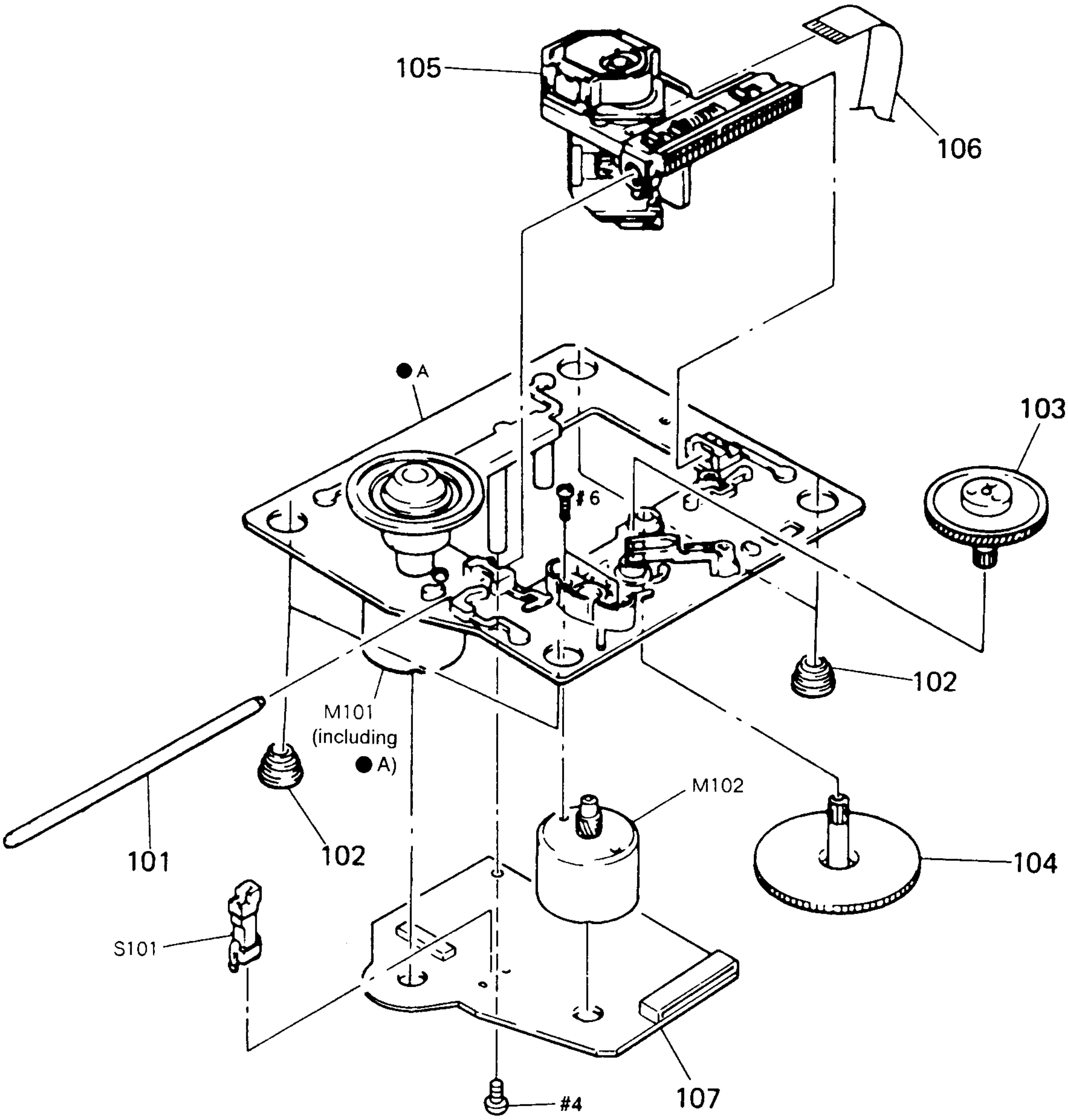
Ref. No.	Part No.	Description	Remark
51	4-944-012-01	TABLE, DISC	
52	A-4604-752-A	HOLDER (MG) ASSY (AEP)	
	A-4660-272-B	HOLDER (MG) ASSY (UK, G, IT)	
53	4-929-764-01	SHAFT (TABLE GUIDE)	
54	4-944-006-01	BEARING	
55	X-4941-462-1	CHASSIS (MD) ASSY	
56	4-927-649-01	BELT	
57	4-929-724-01	PULLEY (B)	
58	X-4929-703-1	ARM ASSY, SWING	
59	4-927-620-01	GEAR (P)	
60	4-927-628-01	GEAR (C)	
61	4-929-727-01	CAM (A)	
62	4-929-729-01	CAM (B)	
63	3-659-338-00	SPRING, COMPRESSION	
64	4-927-654-01	WASHER (LIMITER)	
* 65	4-917-583-21	BRACKET, YOKE	
66	4-917-541-01	SPRING (B) (AEP)	
	4-958-593-01	SPRING (BU), COMPRESSION (UK, G, IT)	
67	4-929-747-01	HOLDER (BU)	
68	4-933-134-01	SCREW (+PTPWH M2.6X6)	
* 69	1-634-461-11	LOADING BOARD	
M291	A-4608-362-A	MOTOR (L) ASSY (LOADING)	

6-3. CD MECHANISM SECTION-2
(BU-5BD3)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
101	4-917-565-01	SHAFT, SLED	
102	4-933-126-01	INSULATOR (A) (AEP)	
	4-951-940-01	INSULATOR (BU) (UK, G, IT)	
103	4-917-567-01	GEAR (M)	
104	4-917-564-01	GEAR (P), FLATNESS	
⚠105	8-848-144-11	DEVICE, OPTICAL KSS-240A	

Ref. No.	Part No.	Description	Remark
106	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
* 107	A-4617-371-A	BD BOARD, COMPLETE	
M101	X-4917-523-3	MOTOR, DISK ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF	

SECTION 7
ELECTRICAL PARTS LIST

BD

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Italian and Germany model is abbreviated as IT, G.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- AAEP: With Player terminal
  AEP: Without Player terminal
- Hardware (# mark) list is given in the last of this parts list.

Ref.No.	Part No.	Description				Remark
*	A-4617-371-A	BD BOARD, COMPLETE				
		******************				
		< CAPACITOR >				
C101	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C102	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C103	1-126-163-11	ELECT	4.7uF	20%	50V	
C104	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C105	1-126-154-11	ELECT	47uF	20%	6.3V	
C106	1-126-154-11	ELECT	47uF	20%	6.3V	
C107	1-126-154-11	ELECT	47uF	20%	6.3V	
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C111	1-131-367-00	TANTALUM	22uF	10%	20V	
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C113	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C114	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C115	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C117	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C118	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C119	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C120	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C151	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C153	1-163-006-11	CERAMIC CHIP	560PF	10%	50V	
C154	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C155	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	
C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C172	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C173	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C174	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
		< CONNECTOR >				
CN101	1-568-796-11	SOCKET, CONNECTOR 22P				
CN102	1-568-795-11	SOCKET, CONNECTOR 12P				
		< IC >				
IC101	8-752-053-73	IC	CXA1372AQ			
IC102	8-759-822-36	IC	LA6532M			

Ref.No.	Part No.	Description				Remark
		< JUMPER RESISTOR >				
J101	1-216-295-00	METAL CHIP	0	5%	1/10W	
J102	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< TRANSISTOR >				
Q101	8-729-901-01	TRANSISTOR	DTC144EK			
		< RESISTOR >				
R101	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R102	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R103	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R104	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R105	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R107	1-216-114-00	METAL GLAZE	510K	5%	1/10W	
R108	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R109	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R110	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R111	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R113	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R114	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R153	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R154	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R155	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R157	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R158	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R159	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R160	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R171	1-216-001-00	METAL CHIP	10	5%	1/10W	
R172	1-216-001-00	METAL CHIP	10	5%	1/10W	
R173	1-216-001-00	METAL CHIP	10	5%	1/10W	
R174	1-216-001-00	METAL CHIP	10	5%	1/10W	
		< VARIABLE RESISTOR >				
RV101	1-241-630-11	RES, ADJ, CARBON 10K				
RV102	1-241-630-11	RES, ADJ, CARBON 10K				

Ref. No.	Part No.	Description				Remark
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)				
**						
*	A-4360-225-A	CD BOARD, COMPLETE (AEP, UK)				
		******************				
*	A-4360-729-A	CD BOARD, COMPLETE (G)				
		******************				
*	A-4360-733-A	CD BOARD, COMPLETE (IT)				
		******************				
*	4-880-403-21	HEAT SINK				
		< CAPACITOR >				
C201	1-124-915-11	ELECT	10uF	20%	63V	
C202	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C203	1-124-564-11	ELECT	4700uF	20%	25V	
C204	1-126-947-11	ELECT	47uF	20%	35V	
C206	1-164-346-11	CERAMIC CHIP	1uF		16V	
C207	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V	
C208	1-126-925-11	ELECT	470uF	20%	10V	
C209	1-126-925-11	ELECT	470uF	20%	10V	
C210	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C211	1-126-933-11	ELECT	100uF	20%	16V	
C212	1-126-933-11	ELECT	100uF	20%	16V	
C213	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C214	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C215	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C216	1-124-584-00	ELECT	100uF	20%	10V	
C217	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C218	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C219	1-124-584-00	ELECT	100uF	20%	10V	
C220	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C221	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C222	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C223	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C225	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C226	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C227	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V	
C228	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C229	1-126-923-11	ELECT	220uF	20%	10V	
C230	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C231	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C232	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C233	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V	
C234	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C235	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C236	1-163-102-00	CERAMIC CHIP	24PF	5%	50V	

Ref. No.	Part No.	Description				Remark
C237	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C238	1-126-923-11	ELECT	220uF	20%	10V	
C239	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C240	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C241	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C242	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C244	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C245	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C246	1-126-923-11	ELECT	220uF	20%	10V	
C247	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C248	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C249	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C251	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C252	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C253	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C254	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V	
C255	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C256	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C257	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C258	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C259	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C260	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C261	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V	
C262	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C263	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C264	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C265	1-124-925-11	ELECT	2.2uF	20%	100V	
C266	1-124-925-11	ELECT	2.2uF	20%	100V	
C267	1-124-925-11	ELECT	2.2uF	20%	100V	
C268	1-124-925-11	ELECT	2.2uF	20%	100V	
C269	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C270	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C272	1-126-933-11	ELECT	100uF	20%	16V	
C273	1-164-346-11	CERAMIC CHIP	1uF		16V	
C274	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
		< CONNECTOR >				
* CN201	1-569-624-11	SOCKET, CONNECTOR 17P				
* CN202	1-568-834-11	SOCKET, CONNECTOR 15P				
CN203	1-695-830-11	HOUSING, CONNECTOR 5P				
* CN204	1-568-822-11	SOCKET, CONNECTOR 22P				
* CN205	1-564-339-51	PIN, CONNECTOR 5P				
CN206	1-695-693-11	CONNECTOR, FFC/FPC 9P				
		< DIODE >				
D201	8-719-210-39	DIODE	EC10QS-04			
D202	8-719-210-39	DIODE	EC10QS-04			
D203	8-719-210-39	DIODE	EC10QS-04			
D204	8-719-210-39	DIODE	EC10QS-04			
D205	8-719-021-13	DIODE	UZM3.9Z			

Ref.No.	Part No.	Description	Remark
D206	8-719-800-76	DIODE 1SS226	
D207	8-719-800-76	DIODE 1SS226	
D208	8-719-021-89	DIODE UZM10X	
D209	8-719-800-76	DIODE 1SS226	

< IC >

Ref.No.	Part No.	Description	Remark
IC201	8-759-636-24	IC M5290FP	
IC202	8-759-148-80	IC uPC2407HF	
IC203	8-759-820-84	IC L78MR05	
IC204	8-759-636-20	IC M54641FP	
IC205	8-759-163-41	IC uPD75116GF-G38-3BE	
IC206	8-752-352-93	IC CXD2500BQ	
IC207	8-752-356-03	IC CXD2567M	
IC208	8-752-351-19	IC CXD2561BM	
IC209	8-759-636-55	IC M5218AFP	
IC210	8-759-636-55	IC M5218AFP	
IC211	8-759-051-64	IC TC9215F-TP1	
IC212	8-749-923-04	IC TOTX178	

< JUMPER RESISTOR >

Ref.No.	Part No.	Description	Remark
JW1	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW2	1-216-295-00	METAL CHIP 0 5% 1/10W	

< COIL >

Ref.No.	Part No.	Description	Remark
L201	1-410-397-21	FERRITE BEAD INDUCTOR	
L202	1-410-464-11	INDUCTOR 3.3uH	
L203	1-410-397-21	FERRITE BEAD INDUCTOR	
L204	1-410-397-21	FERRITE BEAD INDUCTOR	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q201	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q202	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q203	8-729-101-07	TRANSISTOR 2SB798-DL	
Q204	8-729-805-41	TRANSISTOR 2SC3398	
Q205	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q206	8-729-805-41	TRANSISTOR 2SC3398	
Q207	8-729-805-65	TRANSISTOR 2SA1344	
Q208	8-729-805-40	TRANSISTOR 2SC3900	
Q209	8-729-805-40	TRANSISTOR 2SC3900	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R201	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R202	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R203	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R204	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R205	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R206	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R207	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R208	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R209	1-216-001-00	METAL CHIP 10 5% 1/10W	
R210	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R211	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R212	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R213	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R214	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R215	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R216	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R217	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R218	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R219	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R220	1-216-037-00	METAL CHIP 330 5% 1/10W	
R221	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R222	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R223	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R224	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R225	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R226	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R227	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R228	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R229	1-216-025-00	METAL CHIP 100 5% 1/10W	
R230	1-216-025-00	METAL CHIP 100 5% 1/10W	
R231	1-216-025-00	METAL CHIP 100 5% 1/10W	
R232	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R233	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R234	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R235	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R236	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R237	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R238	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R239	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R240	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R241	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R242	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R243	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R244	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R245	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R246	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R247	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R248	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R249	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R250	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R251	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R252	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R253	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R254	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R255	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R256	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R257	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R258	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R259	1-216-041-00	METAL CHIP 470 5% 1/10W	
R260	1-216-097-00	METAL CHIP 100K 5% 1/10W	

CD LOADING PANEL

Ref. No.	Part No.	Description	Remark
R261	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R262	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R263	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R264	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R265	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R266	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R267	1-216-041-00	METAL CHIP 470 5% 1/10W	
R268	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R269	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R270	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R271	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R272	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R273	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R274	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R275	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R276	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R277	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R278	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R279	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R280	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R281	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R282	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R283	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R284	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R285	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R286	1-216-097-00	METAL CHIP 100K 5% 1/10W	
		< VIBRATOR >	
X201	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	
X202	1-567-965-11	VIBRATOR, CRYSTAL (22.6MHz)	

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*	1-634-461-11	LOADING BOARD *************	
		< CONNECTOR >	
* CN291	1-564-498-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S291	1-571-924-11	SWITCH, LEAF (LOAD OUT)	
S292	1-571-924-11	SWITCH, LEAF (LOAD IN)	

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Ref. No.	Part No.	Description	Remark
*	A-4360-227-A	PANEL BOARD, COMPLETE (AEP, UK) ********************	
*	A-4360-731-A	PANEL BOARD, COMPLETE (G) ********************	
*	A-4360-735-A	PANEL BOARD, COMPLETE (IT) ********************	
*	4-932-810-11	CUSHION (FL)	
*	4-954-187-01	HOLDER (FL)	
		< CAPACITOR >	
C601	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C602	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C603	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C604	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C605	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C606	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C607	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C608	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C609	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C610	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C611	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C612	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C613	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C614	1-124-584-00	ELECT 100uF 20% 10V	
C615	1-164-346-11	CERAMIC CHIP 1uF 16V	
C616	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C617	1-124-248-00	ELECT 22uF 20% 35V	
C618	1-136-169-00	FILM 0.22uF 5% 50V	
C619	1-136-173-00	FILM 0.47uF 5% 50V	
C620	1-136-173-00	FILM 0.47uF 5% 50V	
C621	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C622	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN601	1-695-829-11	HOUSING, CONNECTOR 11P	
CN602	1-580-918-11	HOUSING, CONNECTOR 5P	
		< DIODE >	
D601	8-719-301-37	LED SEL2210S-CD	
D602	8-719-301-37	LED SEL2210S-CD	
		< FILTER >	
FL601	1-517-115-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC601	8-759-077-16	IC M66004M4FP	

< COIL >

Ref. No.	Part No.	Description	Remark
L601	1-408-793-21	INDUCTOR CHIP 220uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q603	8-729-805-41	TRANSISTOR 2SC3398	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R601	1-216-041-00	METAL CHIP 470 5% 1/10W	
R602	1-216-045-00	METAL CHIP 680 5% 1/10W	
R603	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R604	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R605	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R606	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R607	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R608	1-216-041-00	METAL CHIP 470 5% 1/10W	
R609	1-216-045-00	METAL CHIP 680 5% 1/10W	
R610	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R611	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R612	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R613	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R614	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R615	1-216-043-00	METAL CHIP 560 5% 1/10W	
R616	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R617	1-216-097-00	METAL CHIP 100K 5% 1/10W	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S601	1-554-303-21	SWITCH, TACTILE (⏏)	
S602	1-554-303-21	SWITCH, TACTILE (▶▶)	
S603	1-554-303-21	SWITCH, TACTILE (◀◀)	
S604	1-554-303-21	SWITCH, TACTILE (EDIT)	
S605	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S606	1-554-303-21	SWITCH, TACTILE (▷ ▮▮)	
S607	1-554-303-21	SWITCH, TACTILE (■)	
S608	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S609	1-554-303-21	SWITCH, TACTILE (BAND)	
S610	1-554-303-21	SWITCH, TACTILE (+)	
S611	1-554-303-21	SWITCH, TACTILE (-)	
S612	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S613	1-554-303-21	SWITCH, TACTILE (MODE)	
S614	1-554-303-21	SWITCH, TACTILE (STEREO/MONO)	
S615	1-554-303-21	SWITCH, TACTILE (PROGRAM)	
S616	1-554-303-21	SWITCH, TACTILE (REPEAT)	

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Ref. No.	Part No.	Description	Remark
*	1-647-875-11	POWER BOARD	

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< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C801	1-126-949-11	ELECT 220uF 20% 35V	
C802	1-124-122-11	ELECT 100uF 20% 50V	
C803	1-126-948-11	ELECT 100uF 20% 35V	
C805	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C806	1-126-157-11	ELECT 10uF 20% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN801	1-695-729-11	CONNECTOR, FFC/FPC 9P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D801	8-719-200-02	DIODE 10E-2	
D802	8-719-200-02	DIODE 10E-2	
D803	8-719-021-23	DIODE UZM4.7B	
D804	8-719-021-23	DIODE UZM4.7B	

< IC >

Ref. No.	Part No.	Description	Remark
IC801	8-759-700-72	IC NJM79L24A	

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠ICP801	1-532-838-11	LINK, IC (PRF800 0.8A)	
⚠ICP802	1-532-838-11	LINK, IC (PRF800 0.8A)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R802	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R803	1-216-041-00	METAL CHIP 470 5% 1/10W	
R804	1-216-041-00	METAL CHIP 470 5% 1/10W	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
⚠T801	1-423-378-11	TRANSFORMER, POWER	

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Ref. No.	Part No.	Description	Remark
*	A-4360-226-A	TUNER BOARD, COMPLETE (AEP, UK)	

****

Ref. No.	Part No.	Description	Remark
*	A-4360-730-A	TUNER BOARD, COMPLETE (G)	

****

Ref. No.	Part No.	Description	Remark
*	A-4360-734-A	TUNER BOARD, COMPLETE (IT)	

****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C124	1-126-160-11	ELECT 1uF 20% 50V	
C125	1-126-160-11	ELECT 1uF 20% 50V	
C126	1-126-160-11	ELECT 1uF 20% 50V	
C127	1-126-160-11	ELECT 1uF 20% 50V	
C128	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

TUNER

Ref. No.	Part No.	Description	Remark
C129	1-126-096-11	ELECT 10uF 20% 35V	
C130	1-126-933-11	ELECT 100uF 20% 16V	
C131	1-126-933-11	ELECT 100uF 20% 16V	
C132	1-164-346-11	CERAMIC CHIP 1uF 16V	
C133	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
C134	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
C135	1-136-173-00	FILM 0.47uF 5% 50V	
C136	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C137	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C138	1-126-157-11	ELECT 10uF 20% 16V	
C139	1-126-160-11	ELECT 1uF 20% 50V	
C140	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C141	1-124-584-00	ELECT 100uF 20% 10V	
C142	1-164-346-11	CERAMIC CHIP 1uF 16V	
C143	1-124-589-11	ELECT 47uF 20% 16V	
C144	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C147	1-126-933-11	ELECT 100uF 20% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN101	1-568-834-11	SOCKET, CONNECTOR 15P	
CN102	1-695-829-11	HOUSING, CONNECTOR 11P	
CN103	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN104	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
* CN105	1-695-808-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN106	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	

< DIODE >

Ref. No.	Part No.	Description	Remark
D101	8-719-990-39	DIODE DCB010	
D102	8-719-021-95	DIODE UZM11B	
D103	8-719-990-39	DIODE DCB010	
D104	8-719-990-39	DIODE DCB010	

< IC >

Ref. No.	Part No.	Description	Remark
IC102	8-759-051-64	IC TC9215F-TP1	
IC104	8-759-155-75	IC uPD78011GC-514-AB8	
IC105	8-759-510-43	IC PST572C	
IC106	8-759-504-12	IC X24C01S	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JW103	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW104	1-216-295-00	METAL CHIP 0 5% 1/10W	(IT)
JW105	1-216-295-00	METAL CHIP 0 5% 1/10W	(AEP, UK)

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q103	8-729-232-69	TRANSISTOR 2SK208GR3	
Q104	8-729-209-15	TRANSISTOR 2SD2012	
Q105	8-729-101-07	TRANSISTOR 2SB798-DL	
Q107	8-729-805-65	TRANSISTOR 2SA1344	
Q108	8-729-805-41	TRANSISTOR 2SC3398	
Q109	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R123	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R124	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R125	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R126	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R127	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R128	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R129	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R130	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R131	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R132	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R133	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R134	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R135	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R136	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R137	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R138	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R139	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R140	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R141	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R142	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R143	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R144	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R145	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R146	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R147	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R148	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R149	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R150	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R151	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R153	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R154	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R155	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R156	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R157	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R158	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R159	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R160	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R161	1-216-001-00	METAL CHIP 10 5% 1/10W	
R162	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R163	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R164	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R165	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R166	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R167	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R168	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R169	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R170	1-216-097-00	METAL CHIP 100K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R171	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R172	1-216-097-00	METAL CHIP 100K 5% 1/10W	
		< TERMINAL >	
* TM101	1-537-288-11	TERMINAL BOARD, ANTENNA (PAL)	
		< VIBRATOR >	
X102	1-579-600-11	VIBRATOR, CERAMIC (8.39MHz)	
**			
*	A-4303-343-A	TCB BOARD, COMPLETE (AEP,UK) ******************	
*	A-4303-448-A	TCB BOARD, COMPLETE (G,IT) ******************	
		< CAPACITOR >	
C001	1-124-120-11	ELECT 220uF 20% 25V	
C002	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C003	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C005	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C006	1-163-038-11	CERAMIC CHIP 0.1uF 25V	
C008	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C009	1-163-012-00	CERAMIC CHIP 0.0018uF 10% 50V	
C010	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C021	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
C022	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
C023	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C024	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C025	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C026	1-164-346-11	CERAMIC CHIP 1uF 16V	
C027	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C029	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C031	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C032	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C033	1-163-038-11	CERAMIC CHIP 0.1uF 25V	
C034	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C035	1-163-033-11	CERAMIC CHIP 0.022uF 50V	
C036	1-163-033-11	CERAMIC CHIP 0.022uF 50V	
C051	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C052	1-126-162-11	ELECT 3.3uF 20% 50V	
C053	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C054	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C055	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	(AEP,UK)
C055	1-163-135-00	CERAMIC CHIP 560PF 5% 50V	(G,IT)
C056	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	(G,IT)
C057	1-164-346-11	CERAMIC CHIP 1uF 16V	

Ref. No.	Part No.	Description	Remark
C058	1-164-346-11	CERAMIC CHIP 1uF 16V	
C059	1-164-346-11	CERAMIC CHIP 1uF 16V	
C060	1-163-038-11	CERAMIC CHIP 0.1uF 25V	
C061	1-163-022-00	CERAMIC CHIP 0.012uF 10% 50V	
C062	1-163-022-00	CERAMIC CHIP 0.012uF 10% 50V	
C063	1-164-346-11	CERAMIC CHIP 1uF 16V	
C064	1-164-346-11	CERAMIC CHIP 1uF 16V	
C065	1-164-346-11	CERAMIC CHIP 1uF 16V	
C066	1-164-346-11	CERAMIC CHIP 1uF 16V	
C069	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C070	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C071	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C072	1-124-120-11	ELECT 220uF 20% 25V	
C073	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C074	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C075	1-126-157-11	ELECT 10uF 20% 16V	
C076	1-126-101-11	ELECT 100uF 20% 16V	
C079	1-126-157-11	ELECT 10uF 20% 16V	
C080	1-124-472-11	ELECT 470uF 20% 10V	
C081	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C082	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C083	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(G,IT)
		< FILTER >	
CF001	1-579-675-11	FILTER, CERAMIC (10.7MHz)	
CF002	1-579-675-11	FILTER, CERAMIC (10.7MHz)	(G,IT)
CF051	1-579-675-11	FILTER, CERAMIC (10.7MHz)	
		< CONNECTOR >	
CN001	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE) 4P	
CN002	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE) 4P	
CN003	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE) 4P	
CN004	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE) 4P	
CN005	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE) 4P	
		< DIODE >	
D021	8-719-422-46	DIODE MA8056	
D051	8-719-988-62	DIODE 1SS355	
		< FRONTEND >	
FE001	1-465-673-11	FRONTEND (FM 2 BAND) (FM)	(AEP,UK)
FE001	1-463-957-12	FRONTEND (FM 4 BAND) (FM)	(G,IT)
FE002	1-239-030-11	ENCAPSULATED COMPONENT (MW)	
FE003	1-239-049-11	ENCAPSULATED COMPONENT (LW)	

TCB

Ref.No.	Part No.	Description	Remark
		< FILTER >	
FL051	1-239-029-11	ENCAPSULATED COMPONENT	(G, IT)
		< IC >	
IC021	8-759-821-43	IC LC7218M	
IC051	8-759-823-68	IC LA1851NM	
		< IFT >	
IFT051	1-404-954-11	TRANSFORMER, DISCRIMINATOR	(FM DET)
IFT052	1-404-713-11	TRANSFORMER, IF (MW/LW IF)	
		< JUMPER RESISTOR >	
JW001	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW002	1-216-295-00	METAL CHIP 0 5% 1/10W	(AEP, UK)
JW004	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW005	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW007	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L001	1-408-793-21	INDUCTOR CHIP 220uH	
L051	1-408-798-00	INDUCTOR CHIP 1mH	
		< LPF >	
LPF051	1-235-221-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q001	8-729-804-72	TRANSISTOR 2SC2814-F4	
Q002	8-729-804-72	TRANSISTOR 2SC2814-F4	(G, IT)
Q003	8-729-810-16	TRANSISTOR 2SA1678	
Q004	8-729-602-36	TRANSISTOR 2SA1602	
Q005	8-729-810-28	TRANSISTOR 2SC4398	
Q006	8-729-602-36	TRANSISTOR 2SA1602	
Q007	8-729-810-28	TRANSISTOR 2SC4398	
Q021	8-729-602-21	TRANSISTOR 2SC4154-F	
Q022	8-729-232-69	TRANSISTOR 2SK208GR3	
Q023	8-729-232-59	TRANSISTOR 2SC4666B	
Q024	8-729-232-69	TRANSISTOR 2SK208GR3	
Q025	8-729-232-58	TRANSISTOR 2SC4666B	
Q051	8-729-602-21	TRANSISTOR 2SC4154-F	
Q052	8-729-602-21	TRANSISTOR 2SC4154-F	
Q053	8-729-810-28	TRANSISTOR 2SC4398	
		< RESISTOR >	
R001	1-216-037-00	METAL CHIP 330 5% 1/10W	
R002	1-216-037-00	METAL CHIP 330 5% 1/10W	
R003	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R004	1-216-037-00	METAL CHIP 330 5% 1/10W	
R005	1-216-109-00	METAL CHIP 330K 5% 1/10W	(G, IT)
R006	1-216-037-00	METAL CHIP 330 5% 1/10W	(G, IT)
R007	1-216-025-00	METAL CHIP 100 5% 1/10W	
R008	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R009	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R010	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R011	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R012	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R013	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R014	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R015	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R016	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R021	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R022	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R023	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R024	1-216-025-00	METAL CHIP 100 5% 1/10W	
R025	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R026	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R027	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R028	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R029	1-216-025-00	METAL CHIP 100 5% 1/10W	
R030	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R031	1-216-043-00	METAL CHIP 560 5% 1/10W	
R032	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R033	1-216-035-00	METAL CHIP 270 5% 1/10W	
R034	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R035	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R036	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R037	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R038	1-216-025-00	METAL CHIP 100 5% 1/10W	
R039	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R040	1-216-043-00	METAL CHIP 560 5% 1/10W	
R041	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R042	1-216-035-00	METAL CHIP 270 5% 1/10W	
R043	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R044	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R045	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R046	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R047	1-216-025-00	METAL CHIP 100 5% 1/10W	
R051	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R052	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R053	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R054	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R055	1-216-075-00	METAL CHIP 12K 5% 1/10W	(AEP, UK)
R056	1-216-075-00	METAL CHIP 12K 5% 1/10W	(G, IT)
R057	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R058	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R059	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R060	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R061	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R062	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R063	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R064	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R065	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R066	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R067	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R068	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R069	1-216-025-00	METAL CHIP 100 5% 1/10W	
R070	1-216-025-00	METAL CHIP 100 5% 1/10W	
R071	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R072	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R073	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R074	1-216-013-00	METAL CHIP 33 5% 1/10W	
R075	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R079	1-216-049-00	METAL CHIP 1K 5% 1/10W (AEP, UK)	
R079	1-216-055-00	METAL CHIP 1.8K 5% 1/10W (G, IT)	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV051	1-238-601-11	RES, ADJ, CARBON 22K (MW/LW TUNED IND. LEVEL)	
RV052	1-238-601-11	RES, ADJ, CARBON 22K (FW TUNED IND. LEVEL)	

< TEST PIN >

Ref. No.	Part No.	Description	Remark
* TP051	1-564-336-00	PIN, CONNECTOR 2P	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X021	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)	
X051	1-577-075-11	OSCILLATOR, CERAMIC (456kHz)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
5	1-696-738-11	WIRE (FLAT TYPE) (5 CORE)	
6	1-696-739-11	WIRE (FLAT TYPE) (11 CORE)	
7	1-690-753-11	WIRE (FLAT TYPE) (22 CORE)	
* 12	1-695-810-11	CONNECTOR, PC BOARD (PLUG) 8P	
* 13	1-695-809-11	CONNECTOR, PC BOARD (PLUG) 4P	
15	1-696-740-11	WIRE (FLAT TYPE) (15 CORE)	
21	1-696-750-11	WIRE (FLAT TYPE) (9 CORE)	
⚠105	8-848-144-11	DEVICE, OPTICAL KSS-240A	
106	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M291	A-4608-362-A	MOTOR (L) ASSY (LOADING)	
M101	X-4917-523-3	MOTOR, DISK ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
*	4-941-548-01	LABEL, CLASS 1	
*	4-957-154-21	INDIVIDUAL CARTON	
*	4-957-356-01	CUSHION (REAR)	
*	4-957-361-01	CUSHION (FRONT)	

****

****
HARDWARE LIST
****

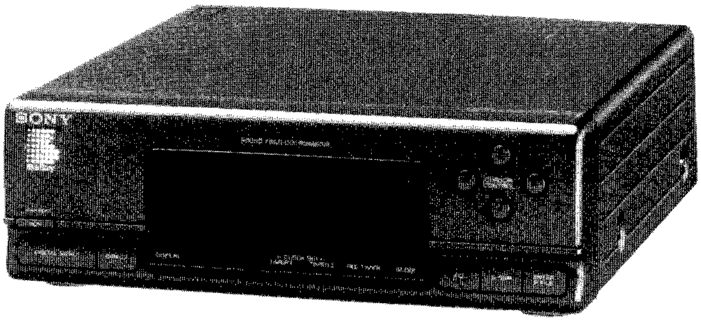
Ref. No.	Part No.	Description	Remark
#1	7-682-547-09	SCREW +BVTT 3X6 (S)	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#6	7-621-775-10	SCREW +B 2.6X4	
#7	7-624-105-04	STOP RING 2.3, TYPE -E	
#8	7-685-234-19	SCREW +KTP 2.6X8 TYPE2NON-SLIT	
#9	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SEQ-H3800

SERVICE MANUAL

AEP Model
UK Model



- SEQ-H3800 is the GRAPHIC EQUALIZER in MHC-3800

COMPACT
disc
DIGITAL AUDIO

SPECIFICATIONS

Graphic Equalizer

Inputs	VIDEO (phono jacks) sensitivity: 250 mV, impedance: 47 kilohms MD/DAT IN (phono jacks) sensitivity: 250 mV, impedance: 47 kilohms PHONO (phono jacks) sensitivity: 3 mV, impedance: 47 kilohms
Outputs	MD/DAT OUT voltage: 250 mV impedance: 2 kilohms

General

Power requirements	European model: 220 V — 230 V, 50/60 Hz U.K. model: 240 V, 50 Hz
Power consumption	170 watts
Dimensions	Approx. 225 x 390 x 280 mm (w/h/d) (8$^{7}/_{8}$ x 15$^{3}/_{8}$ x 11$^{1}/_{8}$ inches) incl. projecting parts and controls
Mass	Approx. 11.7 kg (25 lb 13 oz)
Supplied accessories	Remote Commander (1) (RM-S380) Sony SUM-3 (NS) batteries (2) AM loop antenna (1) FM antenna (1) AC power cord (2) Flat cord (1) Speaker cord (except for Europe and U.K.) (2)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

MICROFILM

GRAPHIC EQUALIZER

SONY®

14

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
TEST MODE

[TEST MODE]

This unit turns on and off the power when connected to the pre-main amplifier (TA-H3800).
If the amplifier is not connected, it will remain in the STANDBY condition even when AC100V is input. When the test mode is set, the following tests can be carried out.

Setting the Test Mode

Test mode ON/OFF	Press the DISPLAY button and SLEEP button together.
1. EQ CHECK ON/OFF	Press the EQ button
• EQ MAX	Press the CURSOR ▲ button.
• EQ FLAT	Press the CURSOR ◀ or ▶ button.
• EQ MIN	Press the CURSOR ▼ button.
2. SUR CHECK ON/OFF	Press the S-SUR button.
• SUR MAX	Press the CURSOR ▲ button.
• SUR OFF	Press the CURSOR ▼ button.
3. FL CHECK ON/OFF	Press the TIMER 1 button.
4. LED CHECK ON/OFF	Press the TIMER 2 button.
5. KEY CHECK ON/OFF	Press the REC TIMER button.

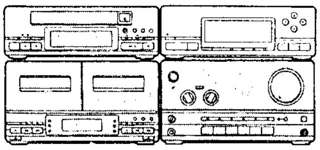
* The test mode can be set when power is supplied only for SEQ-H3800 (all connections removed).
When all checks of check mode "FL CHECK", "LED CHECK", or "KEY CHECK" have been completed, the unit automatically exits the check mode.
As the EQ and SUR effects remain even after the unit exits the "EQ CHECK" and "SUR CHECK" check modes, press the FLAT key after checking the effects to return the unit to its original state.
In the test mode, the image input will be fixed at "VIDEO 1" and the audio input at "MD/DAT".

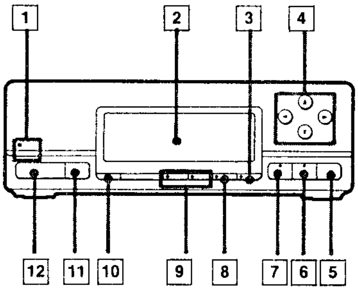
SECTION 2
GENERAL

This section is extracted from instruction manual.

Parts Identification

E





Graphic Equalizer Section E

1 KARAOKE PON button and indicator (112)
2 Display window
3 SLEEP timer button (108)
4 CURSOR CONTROL buttons
5 ENTER-P. FILE button (20, 98, 102, 106)
6 S-SUR button and indicator (96, 98)
7 EQ button and indicator (94, 98)
8 REC TIMER button and indicator (104)
9 CLOCK SET buttons / TIMER 1, 2 buttons and indicators (20, 100)
10 DISPLAY button (92)
11 DIRECT button (90)
12 DIGITAL MENU (Digital Sound Menu) button (90)

SECTION 3
IC PIN FUNCTION

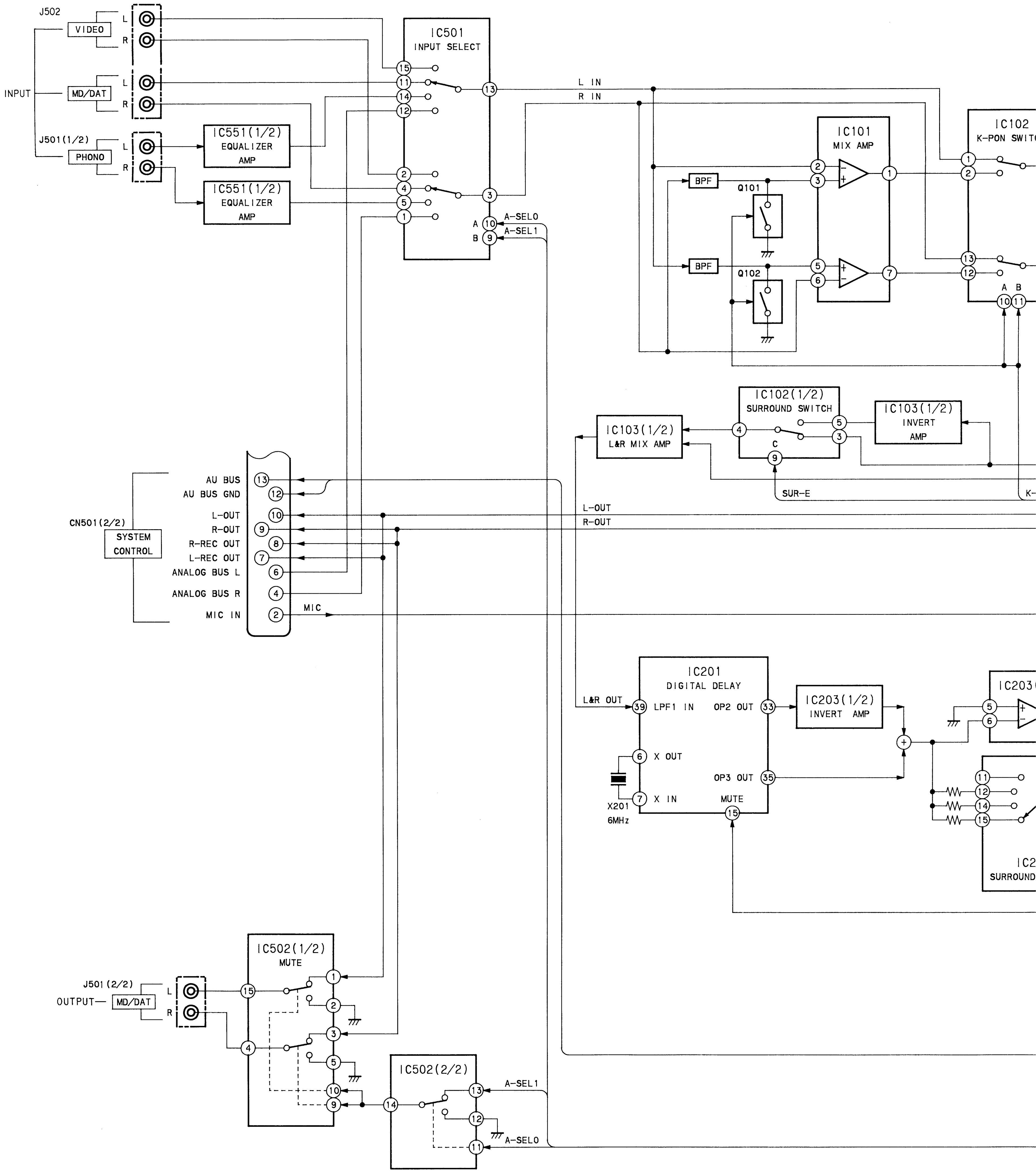
- **IC601 HD6433258A64P**

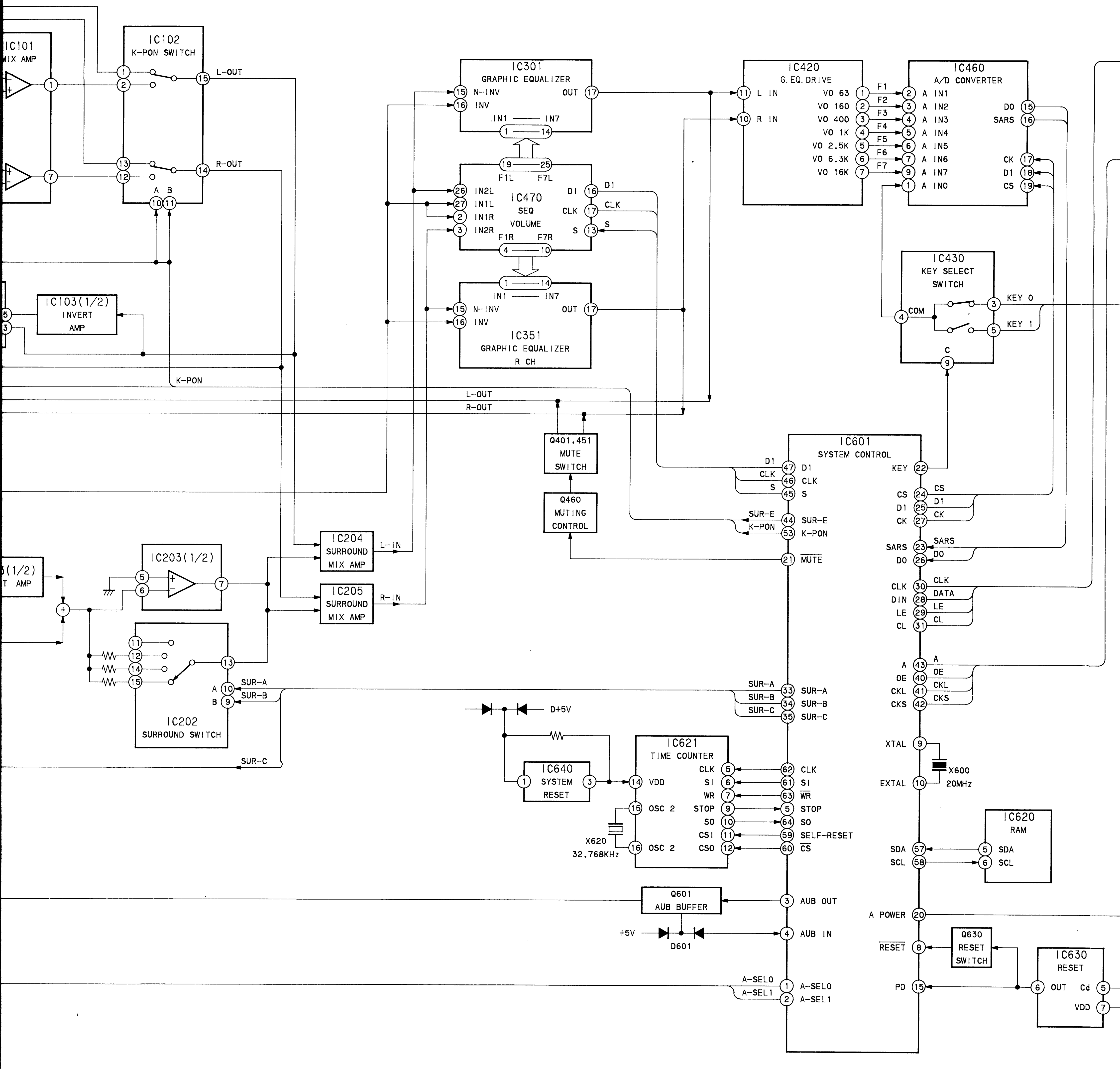
No.	Pin Name	I/O	Function
1	A-SEL0	O	Selecting output of audio input
2	A-SEL1	O	Selecting output of audio input
3	AUB-OUT	O	AU BUS output
4	AUB-IN	I	AU BUS input
5	STDP	I	1024 Hz input (from clock IC IC621 SPC5243)
6	V-SEL0	O	Not used
7	V-SEL1	O	Not used
8	$\overline{\text{RES}}$	I	System reset
9	XTAL	I	Oscillator (20 MHz)
10	EXTAL	I	Oscillator (20 MHz)
11	MD1	I	Operation mode setting (Fixed at L)
12	MD0	I	Operation mode setting (Fixed at L)
13	PD	I	To POWER DOWN detection circuit
14	Vcc	–	Power supply (+5V)
15	$\overline{\text{STBY}}$	I	Standby (Pull up)
16	Vss	–	GND
17	TEST	I	Test pin (Pull up)
18	MODE0	I	Pull up GND
19	MODE1	I	Pull up GND
20	A-POWER	O	Analog power supply ON/OFF output
21	$\overline{\text{MUTE}}$	O	Muting output
22	KEY	O	KEY row selecting output
23	SARS	I	A/D conversion completion for IC460 TC35095 (A/D)
24	CS	O	Chip select for IC460 TC35095 (A/D)
25	DI	O	Channel selection for IC460 TC35095 (A/D)
26	DO	I	Conversion data for IC460 TC35095 (A/D)
27	CK	O	Conversion clock for IC460 TC35095 (A/D)
28	DIN	O	Display data for IC702, IC703 SN755723FT (FL tube driver)
29	LE	O	Display data latch clock for IC702, IC703 SN755723FT (FL tube driver)
30	CLK	O	Display data shift clock for IC702, IC703 SN755723FT (FL tube driver)
31	CL	O	Display ON/OFF for IC702, IC703 SN755723FT (FL tube driver)
32	SUR-D	O	Surround control
33	SUR-A	O	Surround control
34	SUR-B	O	Surround control
35	SUR-C	O	Surround control
36	AUTO	O	Not used
37	V-RO0	O	Not used
38	V-RO1	O	Not used
39	Vcc	–	Power supply (+5V)
40	OE	O	LED lighting ON/OFF for IC701 M66311FP (LED driver)
41	CKL	O	Data latch clock for IC701 M66311FP (LED driver)
42	CKS	O	Data shift clock for IC701 M66311FP (LED driver)
43	A	O	Data for IC701 M66311FP (LED driver)
44	SUR-E	O	Sound control

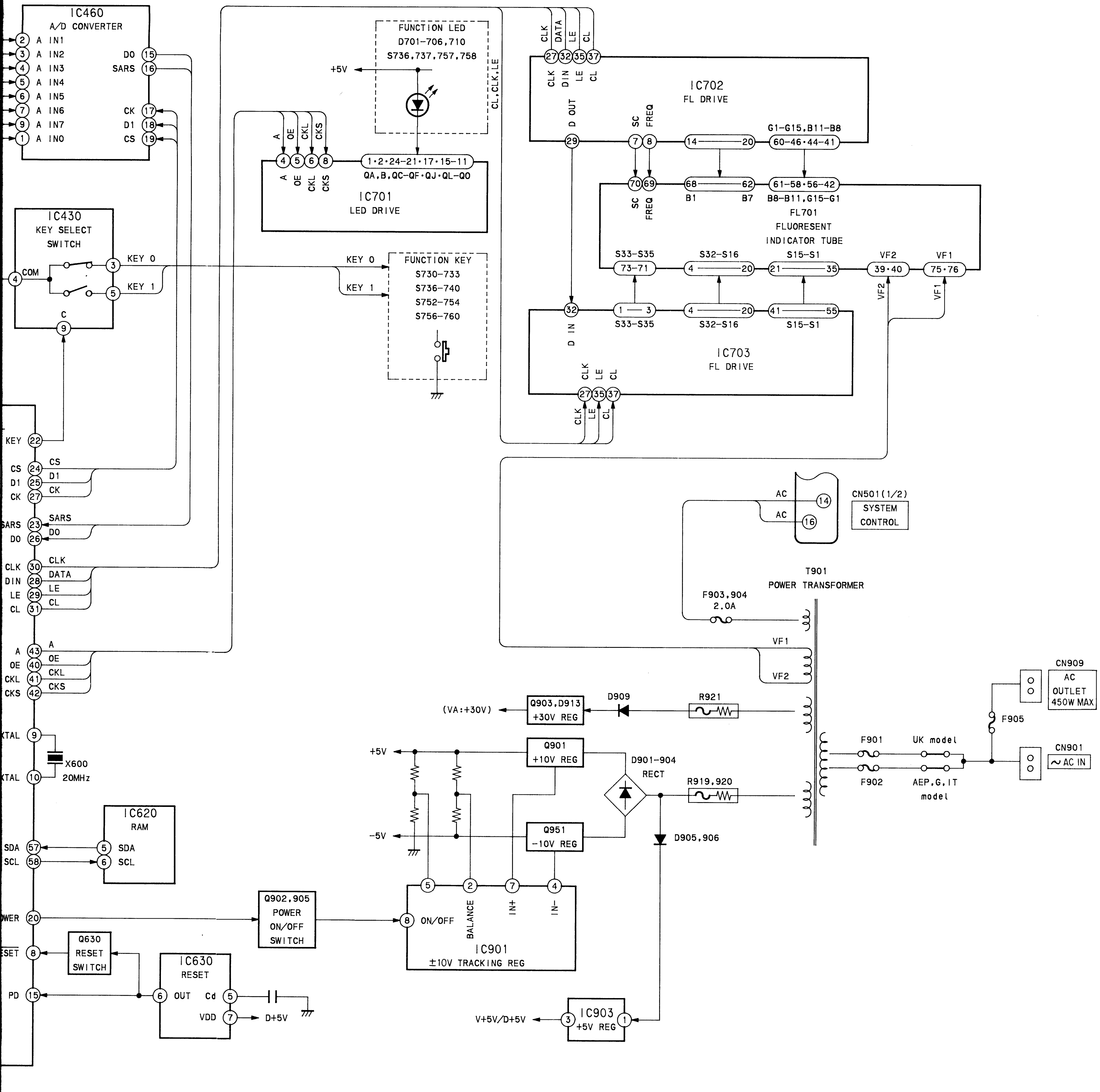
No.	Pin Name	I/O	Function
45	S	O	Chip select for IC470 NJU7305 (Equalizer IC)
46	CLK	O	Shift clock for IC470 NJU7305 (Equalizer IC)
47	DI	O	Data for IC470 NJU7305 (Equalizer IC)
48	Vss	–	GND
49	MPX	O	Not used
50	REQ	O	Not used
51	SECK	O	Not used
52	SEDATA	O	Not used
53	K-PON	O	Karaoke PON ON/OFF
54	$\overline{CS}$	O	Not used
55	$\overline{SCK}$	O	Not used
56	CDI	O	Not used
57	SDA	I/O	IC620 X24C01 (E2PROM) data
58	SCL	O	IC620 X24C01 (E2PROM) clock
59	CS1	O	IC621 SPC5243 (Clock IC) chip select 1
60	$\overline{CS0}$	O	IC621 SPC5243 (Clock IC) chip select 0
61	SI	O	IC621 SPC5243 (Clock IC) write data
62	CLK	O	IC621 SPC5243 (Clock IC) data shift clock
63	$\overline{WR}$	O	IC621 SPC5243 (Clock IC) write/read selection
64	SO	I	IC621 SPC5243 (Clock IC) read data

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM


J502
VIDEO
L
R
INPUT
MD/DAT
J501(1/2)
PHONO
IC551(1/2)
EQUALIZER AMP
IC551(1/2)
EQUALIZER AMP
IC501
INPUT SELECT
A-SEL0
A-SEL1
A
B
L IN
R IN
IC101
MIX AMP
BPF
Q101
BPF
Q102
IC102
K-PON SWIT
A B
IC102(1/2)
SURROUND SWITCH
C
IC103(1/2)
INVERT AMP
IC103(1/2)
L&R MIX AMP
SUR-E
K-
CN501(2/2)
SYSTEM CONTROL
AU BUS
AU BUS GND
L-OUT
R-OUT
R-REC OUT
L-REC OUT
ANALOG BUS L
ANALOG BUS R
MIC IN
MIC
L-OUT
R-OUT
IC201
DIGITAL DELAY
L&R OUT
LPF1 IN
OP2 OUT
X OUT
OP3 OUT
X IN
MUTE
X201
6MHz
IC203(1/2)
INVERT AMP
IC203
IC2
SURROUND
J501(2/2)
OUTPUT
MD/DAT
IC502(1/2)
MUTE
IC502(2/2)
A-SEL1
A-SEL0

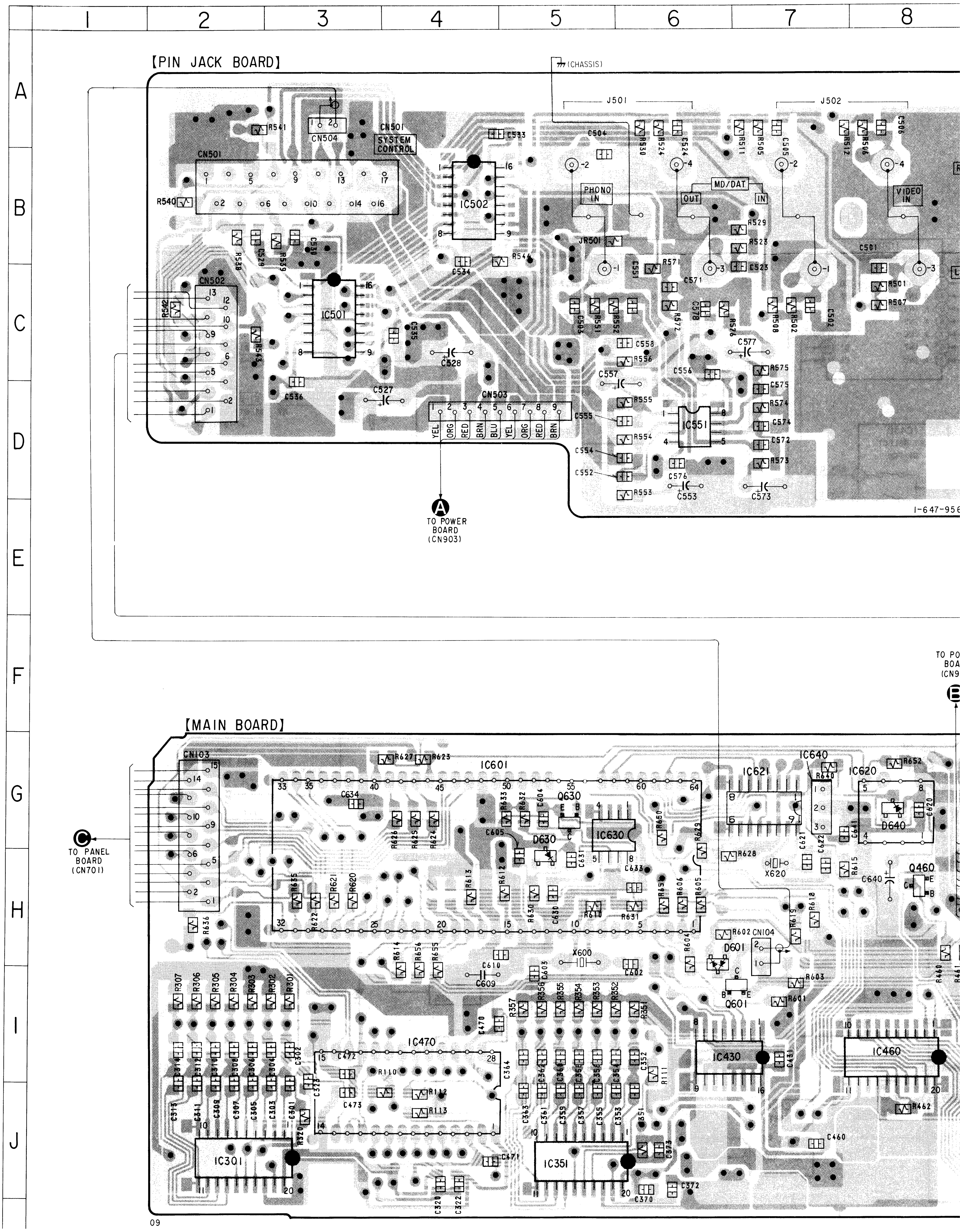

IC101
MIX AMP
IC102
K-PON SWITCH
L-OUT
R-OUT
A B
IC103(1/2)
INVERT AMP
K-PON
IC301
GRAPHIC EQUALIZER
N-INV
INV
OUT
IN1 — IN7
F1L F7L
IC470
SEQ VOLUME
IN2L
IN1L
IN1R
IN2R
F1R F7R
DI
CLK
S
IC351
GRAPHIC EQUALIZER
R CH
IC420
G. EQ. DRIVE
L IN
R IN
VO 63
VO 160
VO 400
VO 1K
VO 2.5K
VO 6.3K
VO 16K
F1
F2
F3
F4
F5
F6
F7
IC460
A/D CONVERTER
A IN1
A IN2
A IN3
A IN4
A IN5
A IN6
A IN7
A IN0
DO
SARS
CK
D1
CS
IC430
KEY SELECT SWITCH
COM
KEY 0
KEY 1
C
L-OUT
R-OUT
Q401,451
MUTE SWITCH
Q460
MUTING CONTROL
IC601
SYSTEM CONTROL
D1
CLK
S
SUR-E
K-PON
MUTE
KEY
CS
D1
CK
SARS
DO
CLK
DIN
LE
CL
DATA
A
OE
CKL
CKS
XTAL
EXTAL
X600
20MHz
SDA
SCL
A POWER
RESET
PD
IC203(1/2)
IC204
SURROUND MIX AMP
L-IN
IC205
SURROUND MIX AMP
R-IN
IC202
SURROUND SWITCH
SUR-A
SUR-B
SUR-C
D+5V
IC640
SYSTEM RESET
IC621
TIME COUNTER
VDD
OSC 2
CLK
SI
WR
STOP
SO
CSI
CSO
SELF-RESET
CS
X620
32.768KHz
IC620
RAM
Q601
AUB BUFFER
AUB OUT
AUB IN
+5V
D601
A-SEL0
A-SEL1
Q630
RESET SWITCH
IC630
RESET
OUT
Cd
VDD
(1/2)
AMP

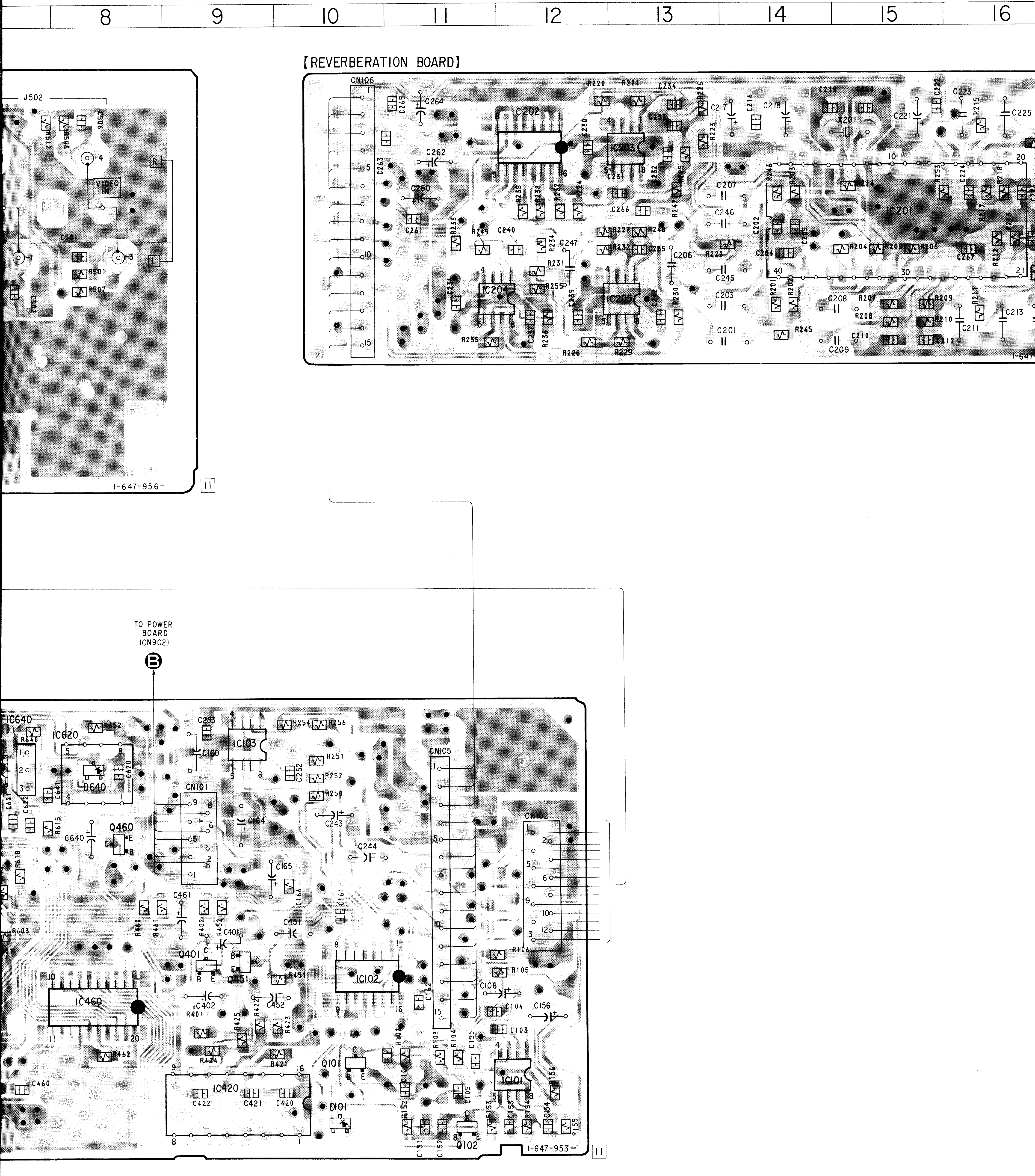

IC460
A/D CONVERTER
A IN1
A IN2
A IN3
A IN4
A IN5
A IN6
A IN7
A IN0
DO
SARS
CK
D1
CS
IC430
KEY SELECT SWITCH
COM
KEY 0
KEY 1
C
FUNCTION LED
D701-706,710
S736,737,757,758
+5V
CL,CLK,LE
A
OE
CKL
CKS
1·2·24-21·17·15-11
QA,B,QC-QF·QJ·QL-QO
IC701
LED DRIVE
FUNCTION KEY
S730-733
S736-740
S752-754
S756-760
CLK
DATA
LE
CL
DIN
IC702
FL DRIVE
D OUT
SC
FREQ
G1-G15,B11-B8
60-46·44-41
B1
B7
61-58·56-42
B8-B11,G15-G1
FL701
FLUORESENT INDICATOR TUBE
S33-S35
73-71
S32-S16
S15-S1
VF2
39·40
VF1
75·76
D IN
S33-S35
S32-S16
S15-S1
IC703
FL DRIVE
KEY
CS
D1
CK
SARS
DO
CLK
DIN
LE
CL
A
OE
CKL
CKS
XTAL
X600
20MHz
XTAL
IC620
RAM
SDA
SCL
POWER
RESET
PD
AC
AC
CN501(1/2)
SYSTEM CONTROL
T901
POWER TRANSFORMER
F903,904
2.0A
VF1
VF2
CN909
AC OUTLET
450W MAX
F905
Q903,D913
+30V REG
(VA:+30V)
D909
R921
+5V
Q901
+10V REG
D901-904
RECT
R919,920
F901
UK model
F902
AEP,G,IT model
CN901
~AC IN
-5V
Q951
-10V REG
D905,906
Q902,905
POWER ON/OFF SWITCH
ON/OFF
BALANCE
IN+
IN-
IC901
±10V TRACKING REG
Q630
RESET SWITCH
IC630
RESET
OUT
Cd
VDD
D+5V
V+5V/D+5V
IC903
+5V REG

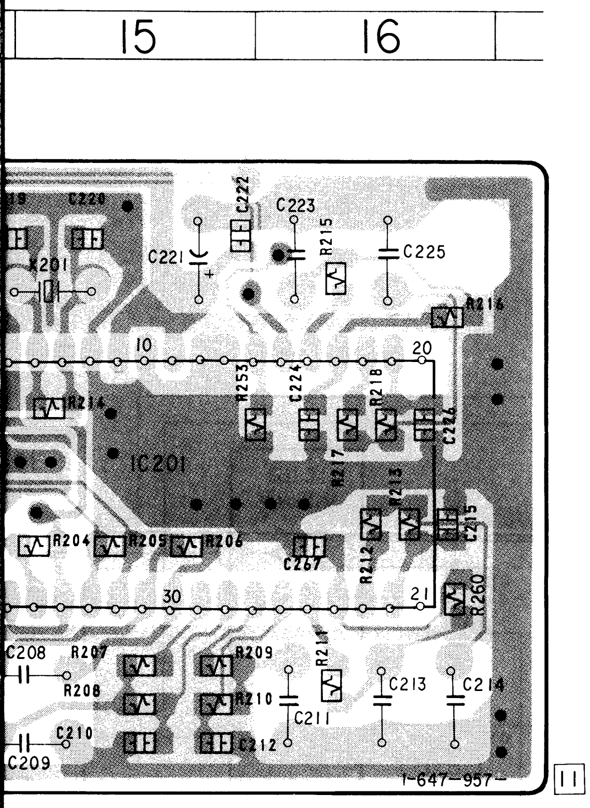
4-2. PRINTED WIRING BOARDS

• MAIN Section

• **See page 29 for Semiconductor Lead** Layouts.


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
[PIN JACK BOARD]
(CHASSIS)
J501
J502
CN501
SYSTEM CONTROL
CN504
CN502
CN503
IC502
IC501
IC551
PHONO IN
MD/DAT
OUT
IN
VIDEO IN
JR501
YEL
ORG
RED
BRN
BLU
YEL
ORG
RED
BRN
A
TO POWER BOARD (CN903)
1-647-95
[MAIN BOARD]
CN103
C
TO PANEL BOARD (CN701)
IC601
IC621
IC640
IC620
IC630
Q630
D630
D640
Q460
X620
X600
CN104
D601
Q601
IC470
IC430
IC460
IC301
IC351
09


8
9
10
11
12
13
14
15
16
【REVERBERATION BOARD】
CN106
IC202
IC203
IC204
IC205
IC201
X201
1-647-
J502
VIDEO IN
R
L
C501
R501
R507
R506
R512
C506
C502
1-647-956-
11
TO POWER BOARD (CN902)
B
IC640
IC620
D640
Q460
CN101
IC103
CN105
CN102
Q401
Q451
IC102
IC460
IC420
IC101
Q101
Q102
D101
1-647-953-
11


15
16
C220
C222
C223
R215
C225
C221
R201
R216
10
20
R253
C224
R218
R214
IC201
R217
R213
C226
C215
R204
R205
R206
C267
R212
R260
30
21
C208
R207
R208
R209
R211
C213
C214
R210
C211
C212
C210
C209
1-647-957-
11

SEMICONDUCTOR LOCATION

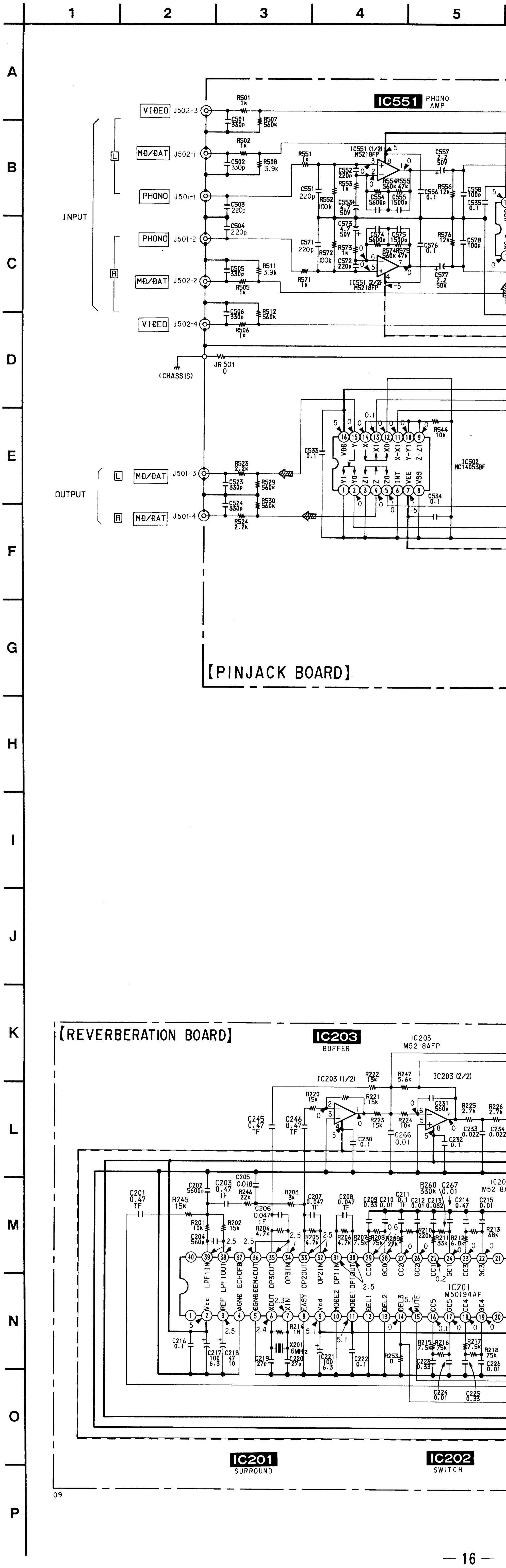
Ref. No.	Location
D101	J-10
D601	H-6
D630	G-5
D640	G-8
IC101	J-12
IC102	I-10
IC103	G-9
IC201	B-15
IC202	B-12
IC203	B-13
IC204	C-11
IC205	C-12
IC301	J-2
IC351	J-5
IC420	J-8
IC430	I-6
IC460	I-8
IC470	I-4
IC501	C-3
IC502	B-4
IC551	D-6
IC601	G-4
IC620	G-8
IC621	G-7
IC630	G-5
IC640	G-7
Q101	J-10
Q102	J-11
Q401	I-9
Q451	I-9
Q460	H-8
Q601	I-6
Q630	G-5

Note:

- ○— : indicated a lead wire mounted on the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.

4-3. SCHEMATIC DIAGRAMS
• MAIN Section

• See page 30, 31, 32 for IC Block Diagrams.

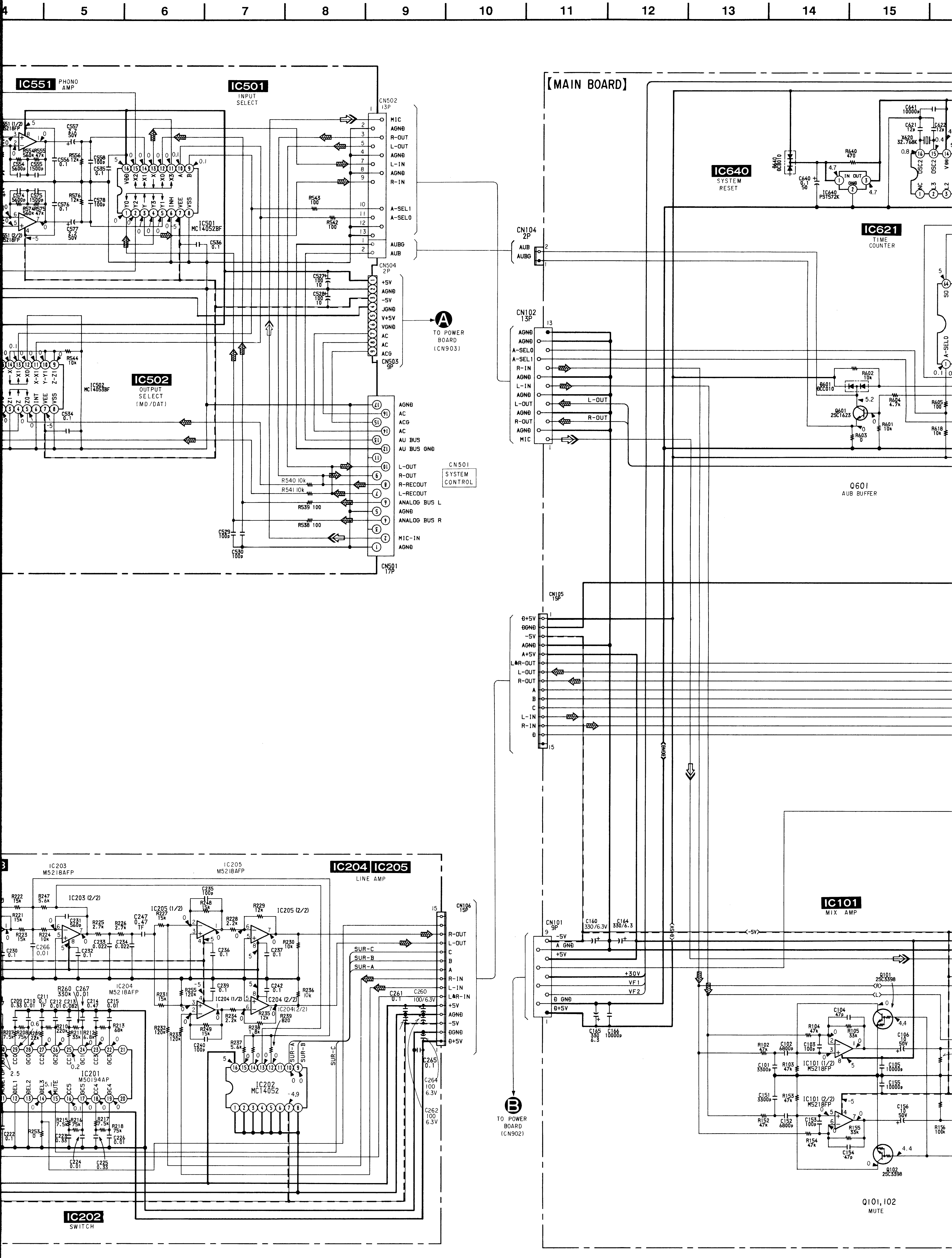

1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
INPUT
OUTPUT
VIDEO J502-3
MD/DAT J502-1
PHONO J501-1
PHONO J501-2
MD/DAT J502-2
VIDEO J502-4
(CHASSIS)
JR501 0
MD/DAT J501-3
MD/DAT J501-4
IC551 PHONO AMP
IC551 (1/2) M5218FP
IC551 (2/2) M5218FP
IC502 MC14053BF
[PINJACK BOARD]
[REVERBERATION BOARD]
IC203 BUFFER
IC203 M5218AFP
IC203 (1/2)
IC203 (2/2)
IC201 M50194AP
X201 6MHz
IC201 SURROUND
IC202 SWITCH
09

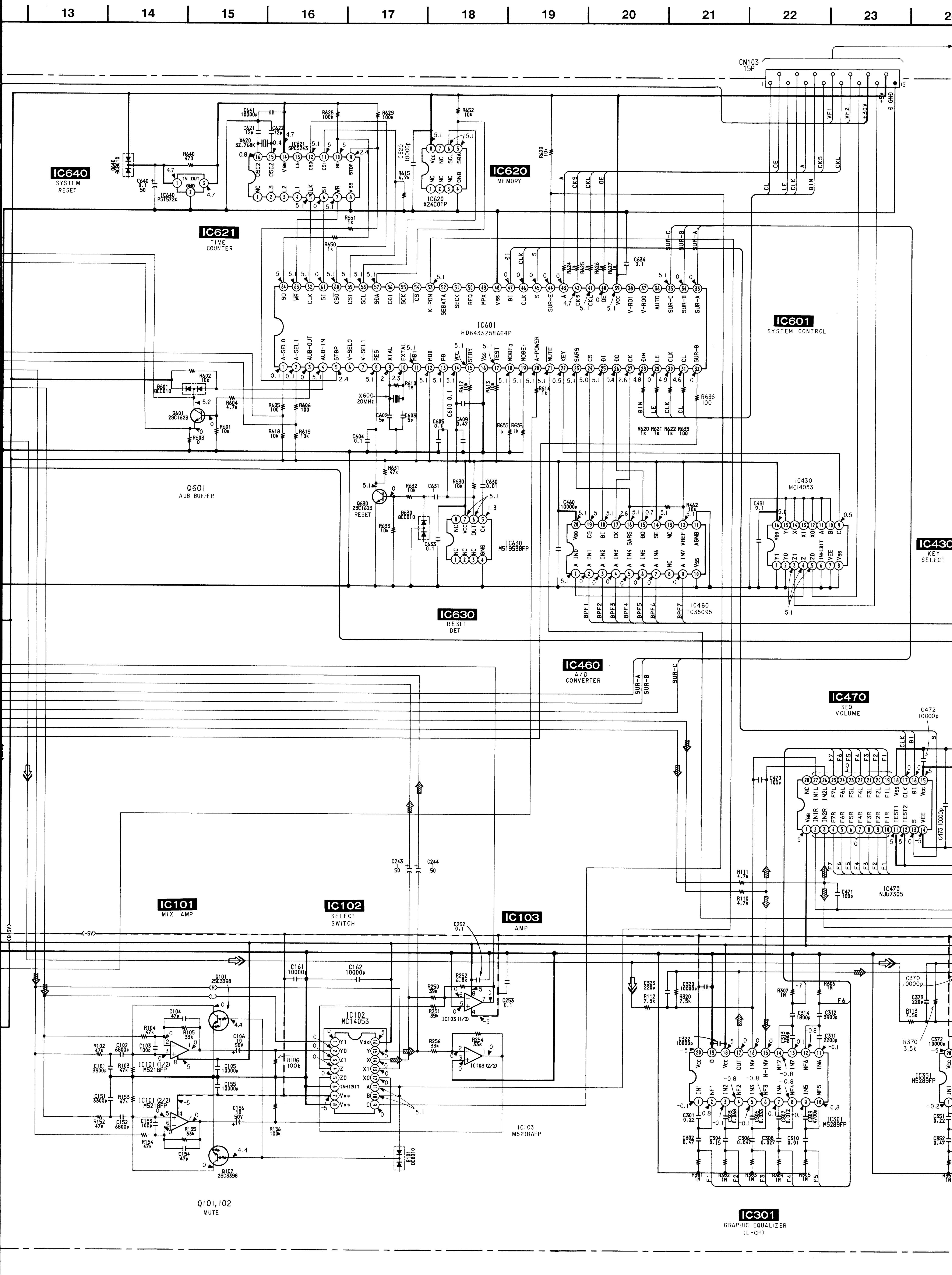
Note:

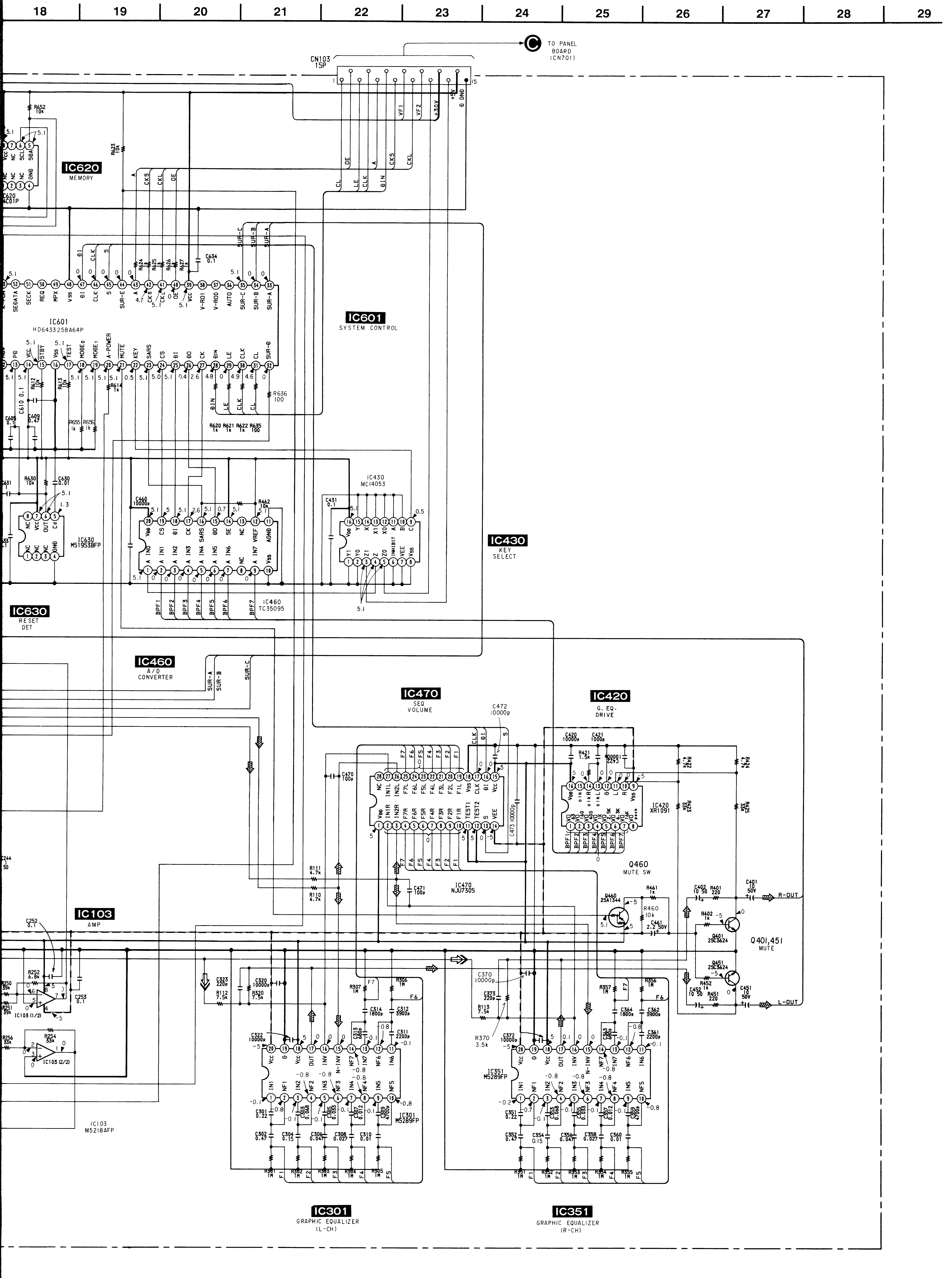
- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : internal component.
- -[W]- : nonflammable resistor.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- —— : B+ Line.
- - - - : B– Line.
- Voltage are dc with respect to ground under no-signal conditions.
- no mark : no signal input.
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path
  ⇨ : CD ⇛ : MIC

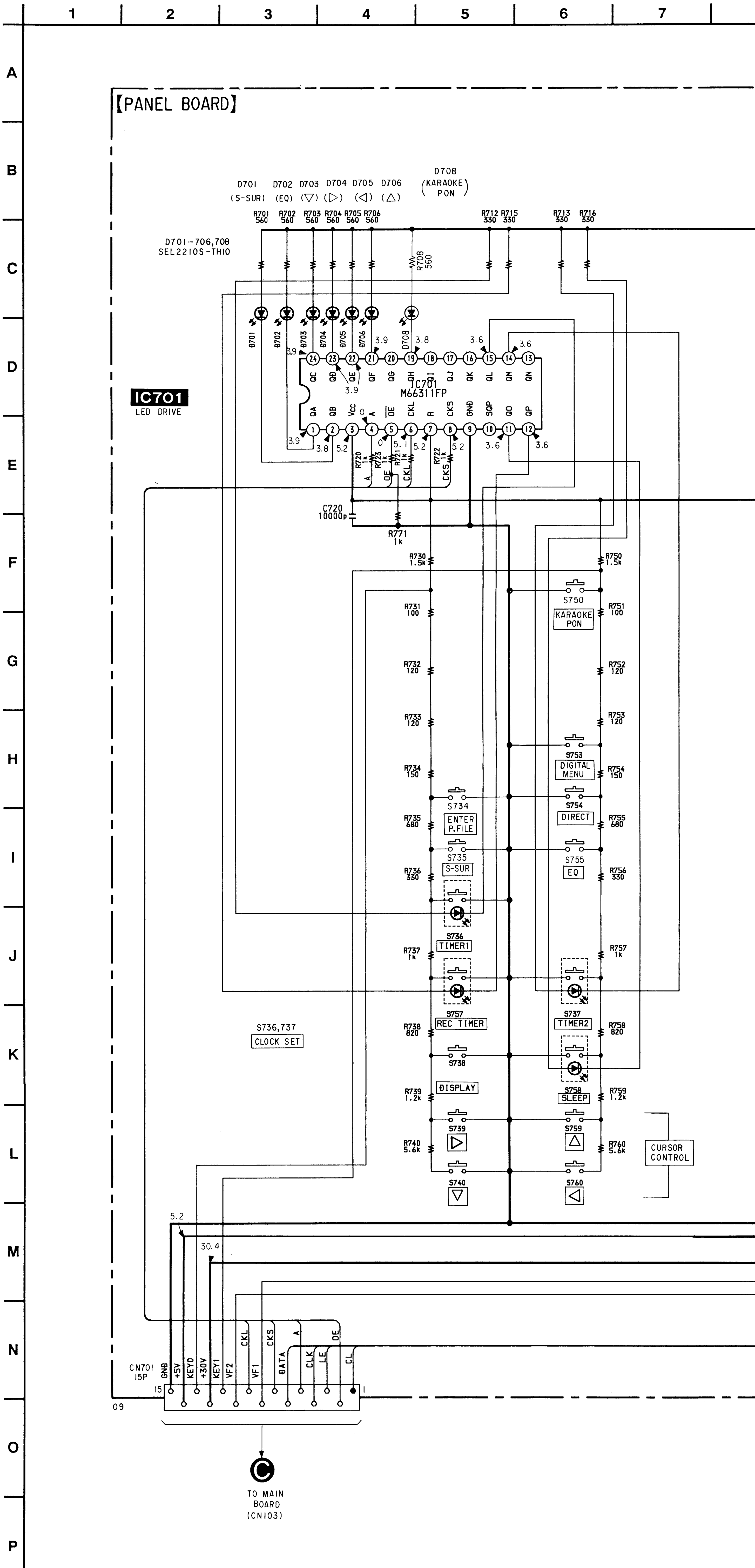

4
5
6
7
8
9
10
11
12
13
14
15
IC551 PHONO AMP
IC501 INPUT SELECT
IC501 MC14052BF
CN502 13P
MIC
AGND
R-OUT
L-OUT
AGND
L-IN
AGND
R-IN
A-SEL1
A-SEL0
AUBG
AUB
CN504 2P
+5V
AGND
-5V
JGND
V+5V
VGND
AC
AC
ACG
CN503 9P
TO POWER BOARD (CN903)
IC502 OUTPUT SELECT (MD/DAT)
IC502 MC14053BF
AGND
AC
ACG
AC
AU BUS
AU BUS GND
L-OUT
R-OUT
R-RECOUT
L-RECOUT
ANALOG BUS L
AGND
ANALOG BUS R
MIC-IN
AGND
CN501 SYSTEM CONTROL
CN501 17P
【MAIN BOARD】
CN104 2P
AUB
AUBG
CN102 13P
IC640 SYSTEM RESET
IC640 PST572K
IC621 TIME COUNTER
Q601 AUB BUFFER
Q601 2SC1623
D601 BCC010
CN105 15P
D+5V
DGND
-5V
AGND
A+5V
L&R-OUT
L-OUT
R-OUT
A
B
C
L-IN
R-IN
D
IC203 M5218AFP
IC205 M5218AFP
IC204 IC205 LINE AMP
IC204 M5218AFP
IC201 M50194AP
IC202 MC14052
IC202 SWITCH
CN106 15P
SUR-C
SUR-B
SUR-A
R-OUT
L-OUT
C
B
A
R-IN
L-IN
L&R-IN
+5V
AGND
-5V
DGND
D+5V
CN101 9P
-5V
A GND
+5V
+30V
VF1
VF2
D GND
D+5V
TO POWER BOARD (CN902)
IC101 MIX AMP
IC101 (1/2) M5218FP
IC101 (2/2) M5218FP
Q101 2SC3398
Q102 2SC3398
Q101,102 MUTE


13
14
15
16
17
18
19
20
21
22
23
CN103
15P
+5V
Ɵ GND
VF1
VF2
+30V
OE
A
CKS
CKL
CL
LE
CLK
ƟIN
IC640
SYSTEM RESET
IC640
PST572K
C640
0.1
50
R640
470
D640
8CB010
IC621
TIME COUNTER
IC621
SPC5243
X620
32.768K
C641
10000p
C621
12p
C622
12p
R628
100k
R629
100k
IC620
MEMORY
IC620
X24C01P
C620
10000p
R615
4.7k
R652
10k
R651
1k
R650
1k
R623
10k
R624
R625
R626
R627
C634
0.1
IC601
SYSTEM CONTROL
IC601
HD6433258A64P
SO
WR
CLK
SI
CS0
CS1
SCL
SDA
CDI
SCK
CS
K-PON
SEDATA
SECK
REQ
MPX
Vss
ƟI
SUR-E
CKS
CKL
OE
Vcc
V-RO1
V-RO0
AUTO
SUR-C
SUR-B
SUR-A
A-SEL0
A-SEL1
AUB-OUT
AUB-IN
STOP
V-SEL0
V-SEL1
RES
XTAL
EXTAL
MD1
MD0
PD
STBY
TEST
MODE0
MODE1
A-POWER
MUTE
KEY
SARS
CS
ƟO
CK
ƟIN
LE
CLK
CL
SUR-Ɵ
R602
10k
D601
8CC010
Q601
2SC1623
R603
0
R604
4.7k
R601
10k
R605
100
R606
100
R618
10k
R619
10k
X600
20MHz
R610
1M
C602
5p
C603
5p
C604
0.1
C605
0.1
C610
0.1
C609
0.47
R612
R613
R655
1k
R656
1k
R614
1k
R636
100
R620
1k
R621
1k
R622
1k
R635
100
Q601
AUB BUFFER
R631
47k
R632
10k
C631
1
R630
10k
C630
0.01
Q630
2SC1623
RESET
D630
8CC010
R633
10k
C633
0.1
IC630
M51953BFP
IC630
RESET DET
C460
10000p
R462
10k
IC460
TC35095
IC460
A/D CONVERTER
BPF1
BPF2
BPF3
BPF4
BPF5
BPF6
BPF7
IC430
MC14053
C431
0.1
IC430
KEY SELECT
IC470
SEQ VOLUME
C472
10000p
C470
100p
C473 10000p
IC470
NJU7305
C471
100p
R111
4.7k
R110
4.7k
IC101
MIX AMP
IC102
SELECT SWITCH
IC103
AMP
C243
50
C244
50
C252
0.1
R252
6.8k
R250
39k
R251
39k
C253
0.1
IC103 (1/2)
R256
33k
R254
33k
IC103 (2/2)
IC103
M5218AFP
IC102
MC14053
R106
100k
C161
10000p
C162
10000p
Q101
2SC3398
Q102
2SC3398
C104
47p
R104
47k
R105
33k
R102
47k
C102
6800p
C103
100p
C101
3300p
R103
47k
IC101 (1/2)
M5218FP
C106
10
50V
C105
10000p
C155
10000p
C151
3300p
R153
47k
IC101 (2/2)
M5218FP
R152
47k
C152
6800p
C153
100p
R154
47k
R155
33k
C154
47p
C156
10
50V
R156
100k
D101
8CB010
Q101, 102
MUTE
-5V
C323
220p
C320
10000p
R112
7.5k
R320
7.5k
R307
1M
R306
1M
F7
F6
C314
1800p
C312
3900p
C313
5600p
C311
2200p
C322
10000p
IC301
M5289FP
C301
0.22
C303
0.068
C305
0.033
C307
0.012
C309
4700p
C302
0.47
C304
0.15
C306
0.047
C308
0.027
C310
0.01
R301
1M
R302
1M
R303
1M
R304
1M
R305
1M
IC301
GRAPHIC EQUALIZER
(L-CH)
C370
10000p
C373
220p
R113
7.5k
R370
3.5k
C372
10000p
IC351
M5289FP
C351
0.22
C352
0.47


18
19
20
21
22
23
24
25
26
27
28
29
C TO PANEL BOARD (CN701)
CN103 15P
VF1
VF2
+30V
+5V
GND
IC620 MEMORY
IC620 24C01P
R652 10k
R623 10k
IC601 SYSTEM CONTROL
IC601 HD6433258A64P
SEDATA
SECK
REQ
MPX
Vss
ΦI
CLK
S
SUR-E
A
CKS
CKL
OE
Vcc
V-RO1
V-RO0
AUTO
SUR-C
SUR-B
SUR-A
PD
STBY
TEST
MODE0
MODE1
A-POWER
MUTE
KEY
SARS
CS
ΦO
CK
ΦIN
LE
CL
SUR-D
C634 0.1
R636 100
R620 1k
R621 1k
R622 1k
R635 100
R612 10k
R613 10k
R614 1k
R655 1k
R656 1k
C610 0.1
C609 0.47
C605 0.1
IC630 RESET DET
IC630 M51953BFP
R630 10k
C630 0.01
IC460 A/D CONVERTER
IC460 TC35095
C460 10000p
R462 10k
VREF
AGND
BPF1
BPF2
BPF3
BPF4
BPF5
BPF6
BPF7
IC430 KEY SELECT
IC430 MC14053
C431 0.1
INHIBIT
VEE
IC470 SEQ VOLUME
IC470 NJU7305
C472 10000p
C470 100p
C471 100p
C473 10000p
R111 4.7k
R110 4.7k
IC420 G. EQ. DRIVE
IC420 XR1091
C420 10000p
C421 1000p
C422 0.0033
R421 1.5k
R422 4.7k
R423 33k
R424 4.7k
R425 33k
Q460 MUTE SW
Q460 2SA1344
R461 1k
R460 10k
C461 2.2 50V
C402 10 50
R401 220
C401 10 50V
R-OUT
R402 1k
Q401 2SC3624
Q451 2SC3624
Q401,451 MUTE
C452 10 50
R452 1k
R451 220
C451 10 50V
L-OUT
IC103 AMP
IC103 M5218AFP
C252 0.1
R252 6.8k
R250 39k
R251 39k
C253 0.1
R256 33k
R254 33k
IC103 (1/2)
IC103 (2/2)
C244 50
C323 220p
R112 7.5k
C320 10000p
R320 7.5k
R307 1M
R306 1M
C314 1800p
C312 3900p
C313 680p
C311 2200p
C322 10000p
C301 0.22
C302 0.47
C303 0.068
C304 0.15
C305 0.033
C306 0.047
C307 0.012
C308 0.027
C309 4700p
C310 0.01
IC301 M5289FP
R301 1M
R302 1M
R303 1M
R304 1M
R305 1M
IC301 GRAPHIC EQUALIZER (L-CH)
C370 10000p
C373 220p
R113 7.5k
R370 3.5k
C372 10000p
R357 1M
R356 1M
C364 1800p
C362 3900p
C363 680p
C361 2200p
IC351 M5289FP
C351 0.22
C352 0.47
C353 0.068
C354 0.15
C355 0.033
C356 0.047
C357 0.012
C358 0.027
C359 4700p
C360 0.01
R351 1M
R352 1M
R353 1M
R354 1M
R355 1M
IC351 GRAPHIC EQUALIZER (R-CH)
Vcc
OUT
INV
N-INV
NF7
IN7
NF6
IN6
IN1
NF1
IN2
NF2
IN3
NF3
IN4
NF4
IN5
NF5
F1
F2
F3
F4
F5
F6
F7

4-4. SCHEMATIC DIAGRAMS
• PANEL, POWER Section

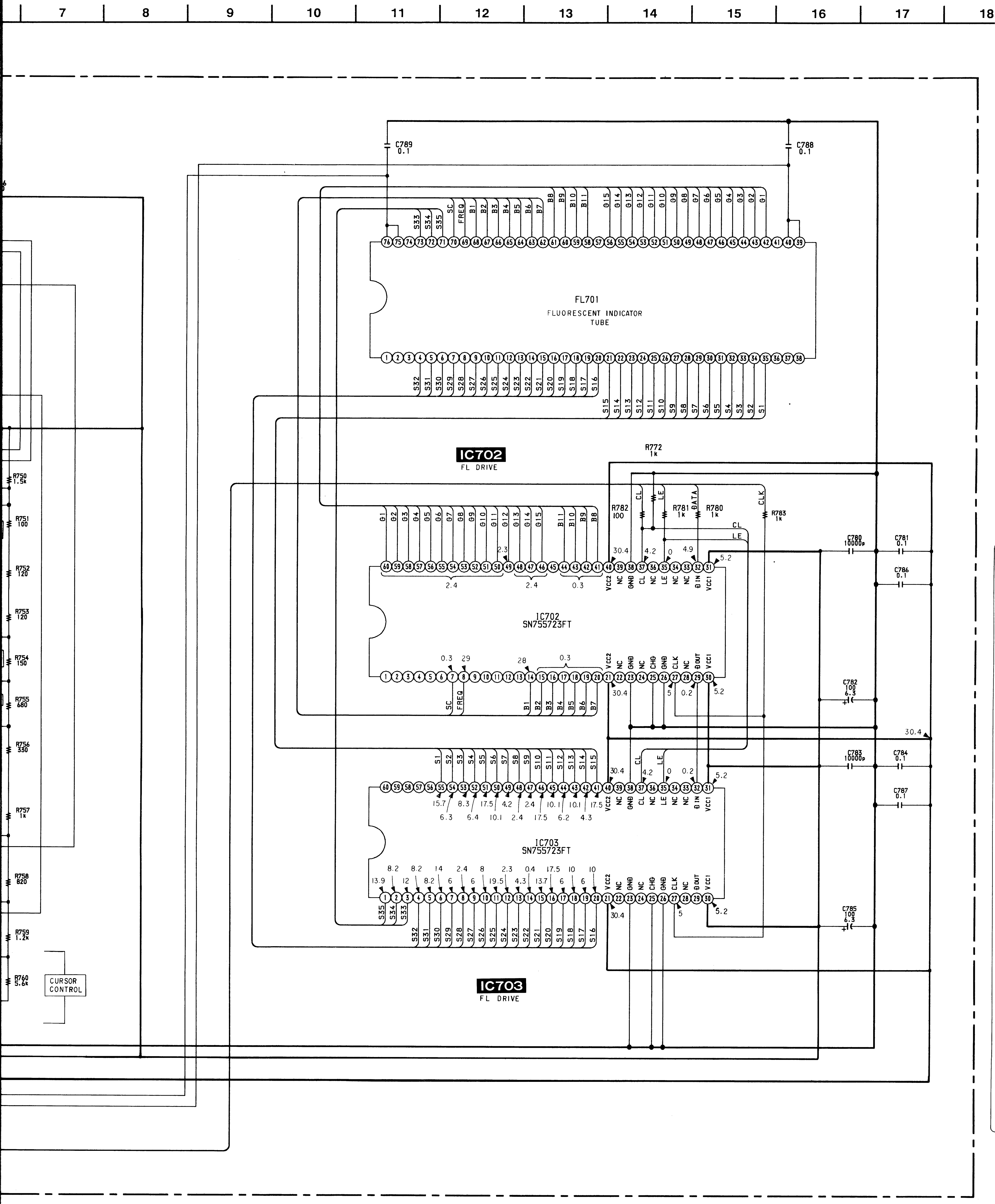
• See page 30, 31, 32 for IC Block Diagrams.

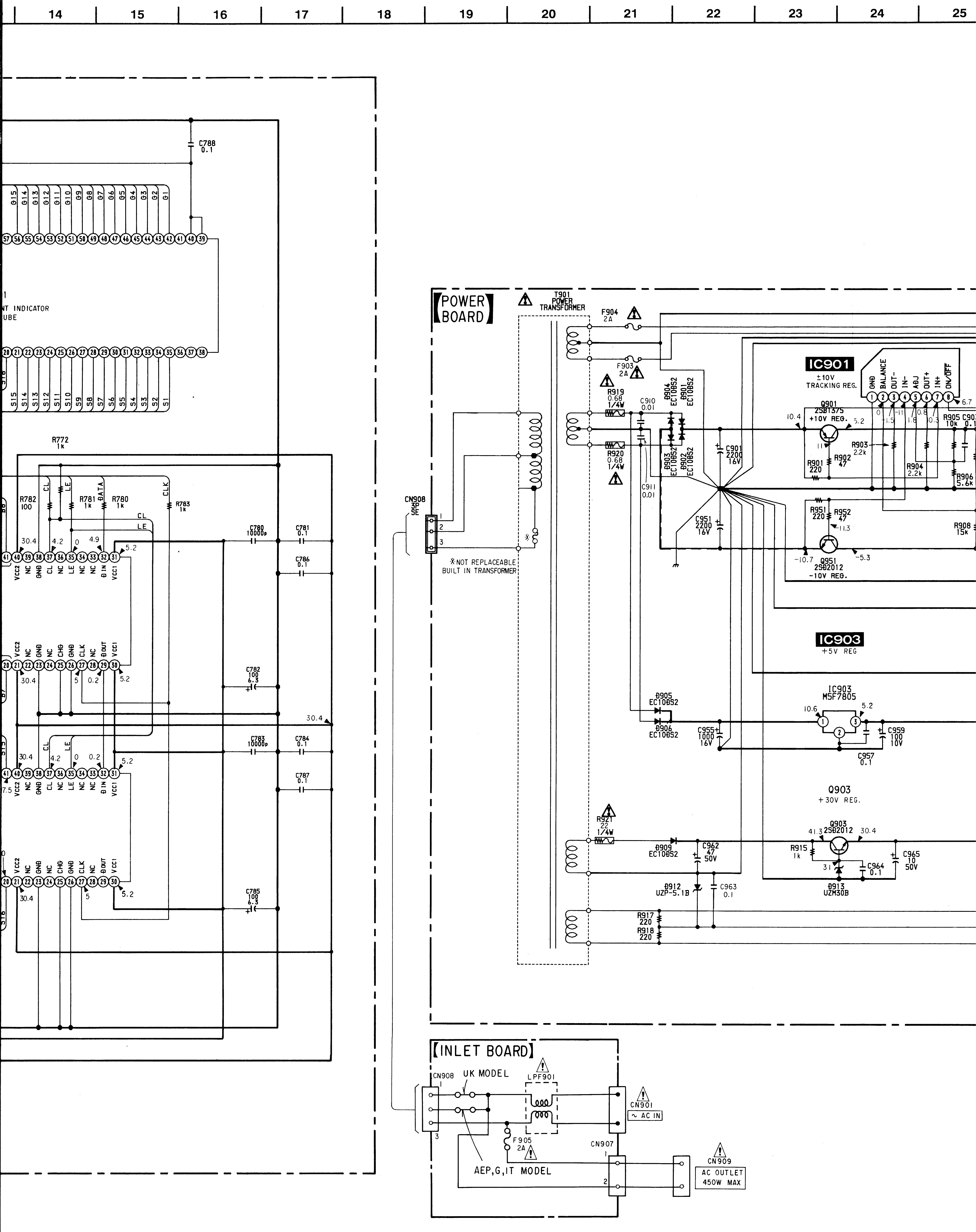

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
【PANEL BOARD】
D701 (S-SUR)
D702 (EQ)
D703 (▽)
D704 (▷)
D705 (◁)
D706 (△)
D708 (KARAOKE PON)
R701 560
R702 560
R703 560
R704 560
R705 560
R706 560
R708 560
R712 330
R715 330
R713 330
R716 330
D701-706,708
SEL2210S-TH10
IC701
LED DRIVE
IC701
M66311FP
QA QB Vcc A OE CKL R CKS GND SQP QO QP
QC QD QE QF QG QH QI QJ QK QL QM QN
3.9
3.8
3.6
5.2
5.1
0
R720 1k
R723 1k
R721 1k
R722 1k
C720 10000p
R771 1k
R730 1.5k
R731 100
R732 120
R733 120
R734 150
R735 680
R736 330
R737 1k
R738 820
R739 1.2k
R740 5.6k
R750 1.5k
R751 100
R752 120
R753 120
R754 150
R755 680
R756 330
R757 1k
R758 820
R759 1.2k
R760 5.6k
S750 KARAOKE PON
S753 DIGITAL MENU
S754 DIRECT
S755 EQ
S734 ENTER P.FILE
S735 S-SUR
S736 TIMER1
S757 REC TIMER
S737 TIMER2
S738 DISPLAY
S758 SLEEP
S739 ▷
S759 △
S740 ▽
S760 ◁
CURSOR CONTROL
S736,737 CLOCK SET
5.2
30.4
CN701 15P
GND +5V KEY0 +30V KEY1 VF2 VF1 DATA CLK LE CL
CKL CKS A OE
15
1
09
C
TO MAIN BOARD (CN103)

Note:
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : internal component.
- : nonflammable resistor.
- : fuse resistor.

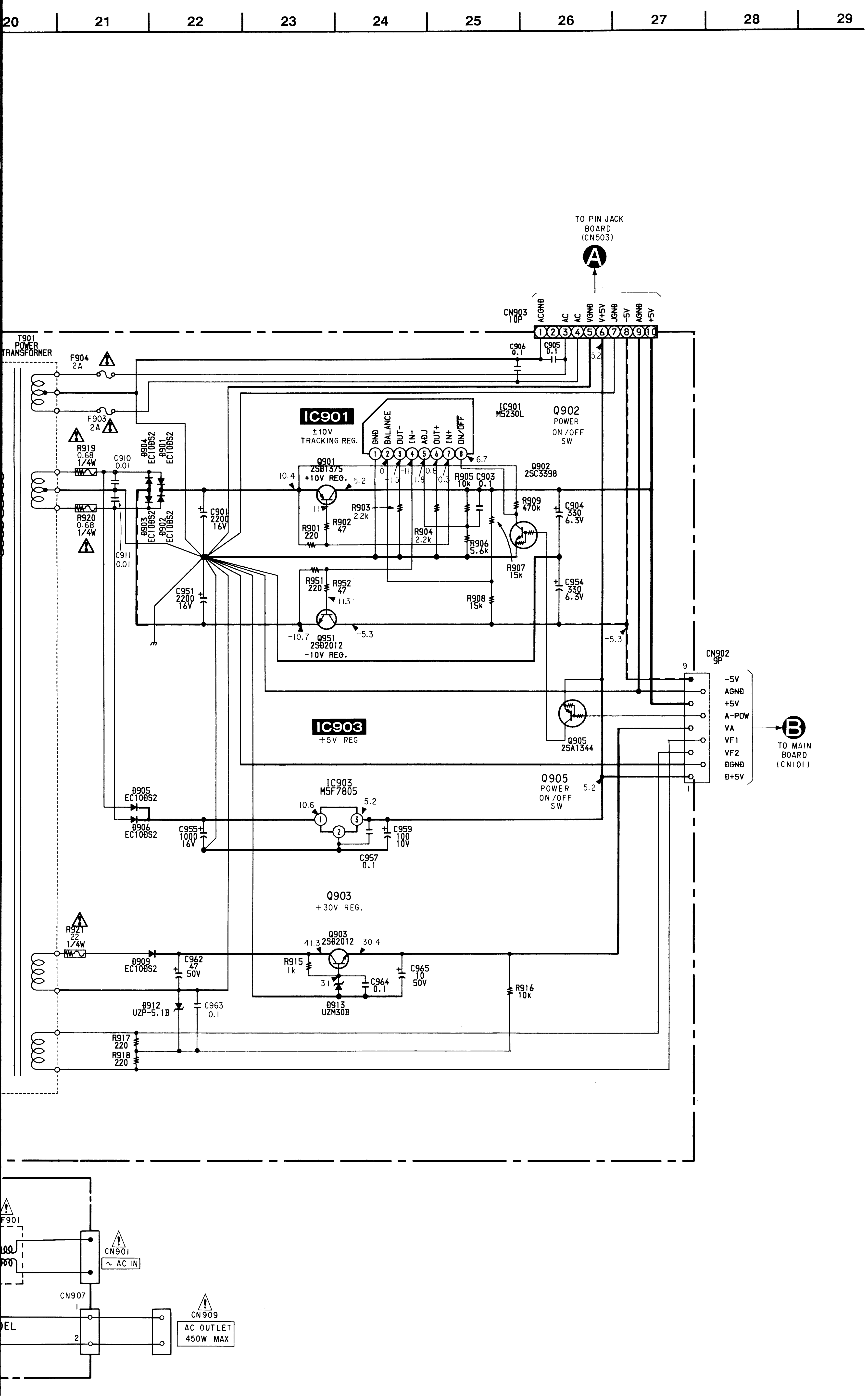
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- ━━ : B+ Line.
- - - - : B– Line.
- Voltage are dc with respect to ground under no-signal conditions.
- no mark : no signal input.
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.


7
8
9
10
11
12
13
14
15
16
17
18
C789
0.1
C788
0.1
S33
S34
S35
SC
FREQ
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
G15
G14
G13
G12
G11
G10
G9
G8
G7
G6
G5
G4
G3
G2
G1
FL701
FLUORESCENT INDICATOR
TUBE
S32
S31
S30
S29
S28
S27
S26
S25
S24
S23
S22
S21
S20
S19
S18
S17
S16
S15
S14
S13
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
S1
IC702
FL DRIVE
R772
1k
R782
100
CL
LE
DATA
R781
1k
R780
1k
CLK
R783
1k
30.4
4.2
0
4.9
5.2
2.3
2.4
2.4
0.3
VCC2
NC
GND
CL
NC
LE
NC
ΦIN
VCC1
IC702
SN755723FT
0.3
29
28
0.3
CHG
GND
CLK
NC
ΦOUT
VCC1
30.4
5
0.2
5.2
C780
10000p
C781
0.1
C786
0.1
C782
100
6.3
30.4
C783
10000p
C784
0.1
C787
0.1
30.4
4.2
0
0.2
5.2
15.7
8.3
17.5
4.2
2.4
10.1
10.1
17.5
6.3
6.4
10.1
2.4
17.5
6.2
4.3
IC703
SN755723FT
8.2
8.2
14
2.4
8
2.3
0.4
17.5
10
10
13.9
12
8.2
6
6
19.5
4.3
13.7
6
6
30.4
5
5.2
C785
100
6.3
IC703
FL DRIVE
R750
1.5k
R751
100
R752
120
R753
120
R754
150
R755
680
R756
330
R757
1k
R758
820
R759
1.2k
R760
5.6k
CURSOR
CONTROL



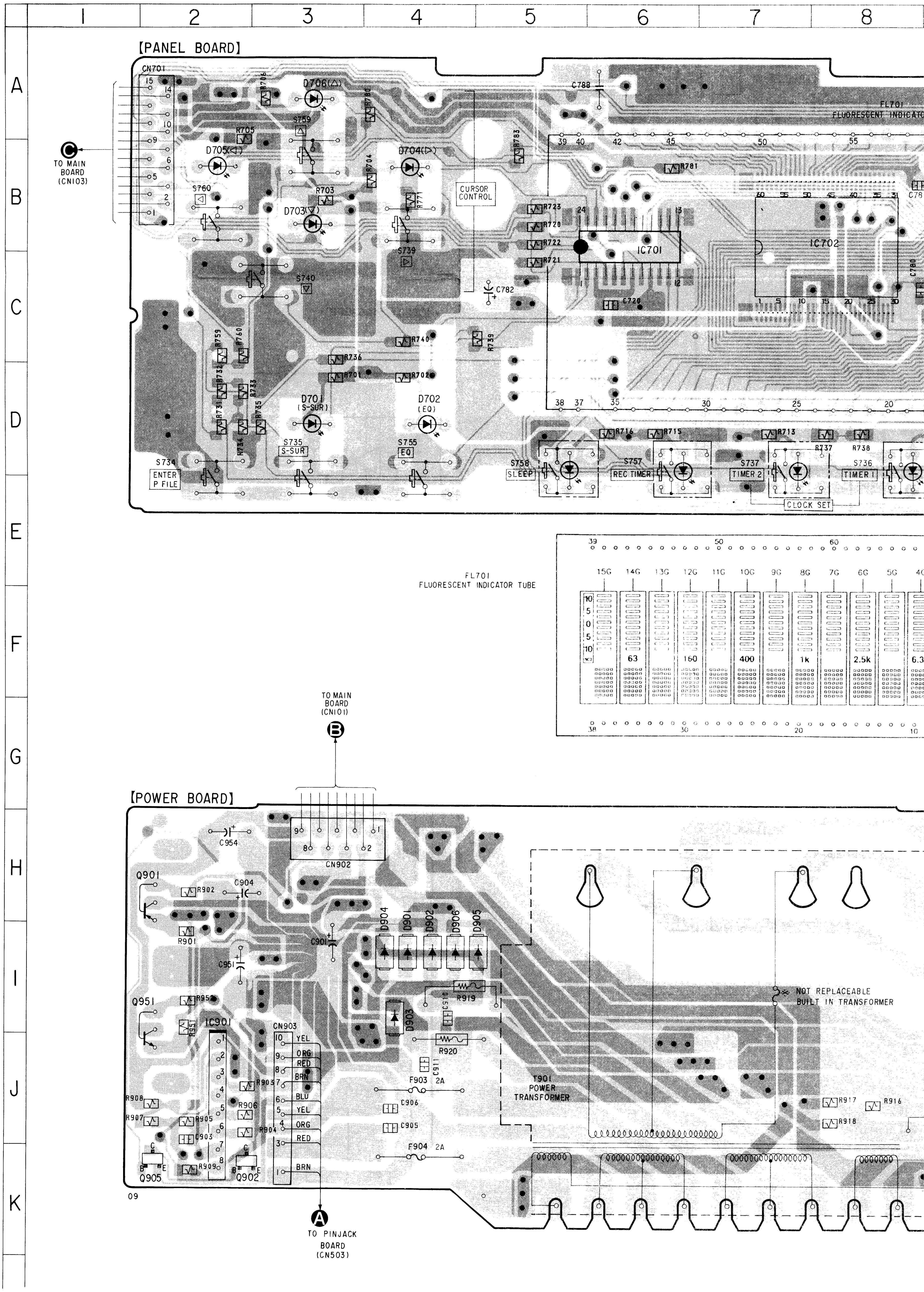
14
15
16
17
18
19
20
21
22
23
24
25
C788
0.1
G15 G14 G13 G12 G11 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1
NT INDICATOR
UBE
S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
R772
1k
R782
100
CL
LE
R781
1k
DATA
R780
1k
CLK
R783
1k
CL
LE
C780
10000p
C781
0.1
C786
0.1
30.4
4.2
0
4.9
5.2
VCC2 NC GND CL NC LE NC NC DIN VCC1
VCC2 NC GND NC CHG GND CLK NC DOUT VCC1
30.4
5
0.2
5.2
C782
100
6.3
30.4
C783
10000p
C784
0.1
C787
0.1
7.5
C785
100
6.3
POWER BOARD
T901
POWER
TRANSFORMER
F904
2A
F903
2A
R919
0.68
1/4W
R920
0.68
1/4W
C910
0.01
C911
0.01
D904
EC10DS2
D901
EC10DS2
D903
EC10DS2
D902
EC10DS2
C901
2200
16V
C951
2200
16V
CN908
3P
SE
※NOT REPLACEABLE
BUILT IN TRANSFORMER
IC901
±10V
TRACKING REG.
GND BALANCE OUT- IN- ADJ OUT+ IN+ ON/OFF
6.7
Q901
2SB1375
+10V REG.
10.4
5.2
11
0
-11
-1.5
1.8
0.8
10.3
R903
2.2k
R902
47
R901
220
R904
2.2k
R905
10k
C90
0.1
R906
5.6k
R951
220
R952
47
-11.3
R908
15k
-10.7
Q951
2SB2012
-10V REG.
-5.3
IC903
+5V REG
IC903
M5F7805
10.6
5.2
D905
EC10DS2
D906
EC10DS2
C955
1000
16V
C959
100
10V
C957
0.1
Q903
+30V REG.
R921
22
1/4W
Q903
2SB2012
41.3
30.4
D909
EC10DS2
C962
47
50V
R915
1k
31
C964
0.1
C965
10
50V
D912
UZP-5.1B
C963
0.1
D913
UZM30B
R917
220
R918
220
INLET BOARD
CN908
UK MODEL
LPF901
CN901
~ AC IN
F905
2A
CN907
AEP,G,IT MODEL
CN909
AC OUTLET
450W MAX

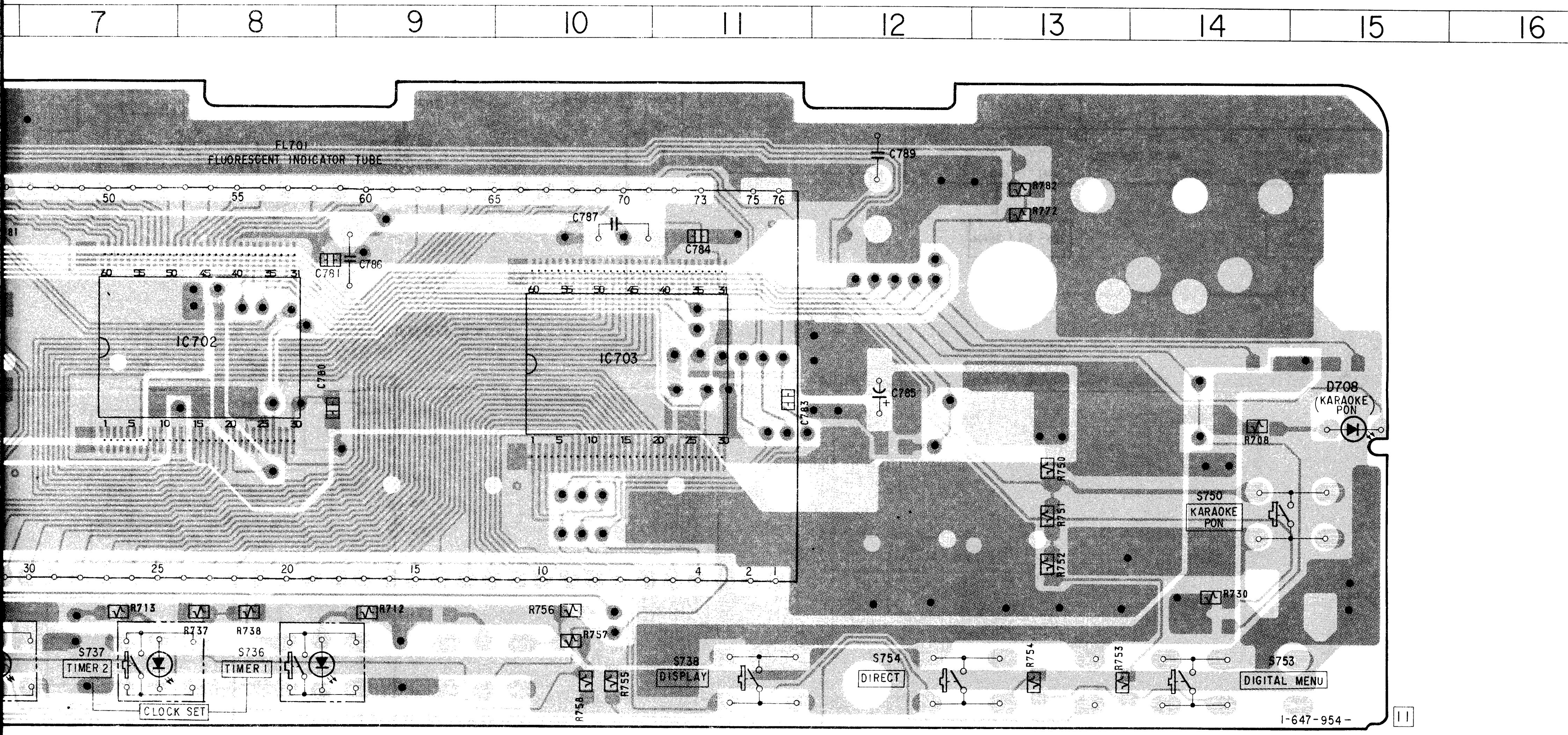

20
21
22
23
24
25
26
27
28
29
TO PIN JACK BOARD (CN503)
A
CN903 10P
ACGND
AC
AC
VGND
V+5V
JGND
-5V
AGND
+5V
C906 0.1
C905 0.1
5.2
T901 POWER TRANSFORMER
F904 2A
F903 2A
R919 0.68 1/4W
R920 0.68 1/4W
C910 0.01
C911 0.01
D904 EC10BS2
D901 EC10BS2
D903 EC10BS2
D902 EC10BS2
IC901
±10V TRACKING REG.
IC901 M5230L
GND
BALANCE
OUT-
IN-
ADJ
OUT+
IN+
ON/OFF
6.7
Q902 POWER ON/OFF SW
Q902 2SC3398
Q901 2SB1375 +10V REG.
10.4
5.2
0
-1.5
-11
1.8
0.8
10.3
11
R903 2.2k
R902 47
R901 220
R904 2.2k
R905 10k
C903 0.1
R906 5.6k
R909 470k
C904 330 6.3V
R907 15k
C901 2200 16V
C951 2200 16V
R951 220
R952 47
-11.3
R908 15k
C954 330 6.3V
-10.7
Q951 2SB2012 -10V REG.
-5.3
-5.3
CN902 9P
9
1
-5V
AGND
+5V
A-POW
VA
VF1
VF2
DGND
D+5V
B
TO MAIN BOARD (CN101)
IC903
+5V REG
Q905 2SA1344
Q905 POWER ON/OFF SW
5.2
D905 EC10BS2
D906 EC10BS2
IC903 M5F7805
10.6
5.2
C955 1000 16V
C959 100 10V
C957 0.1
Q903
+30V REG.
Q903 2SB2012
41.3
30.4
R921 22 1/4W
D909 EC10BS2
C962 47 50V
R915 1k
31
C964 0.1
C965 10 50V
D913 UZM30B
R916 10k
D912 UZP-5.1B
C963 0.1
R917 220
R918 220
F901
CN901
~ AC IN
CN907
EL
CN909
AC OUTLET 450W MAX

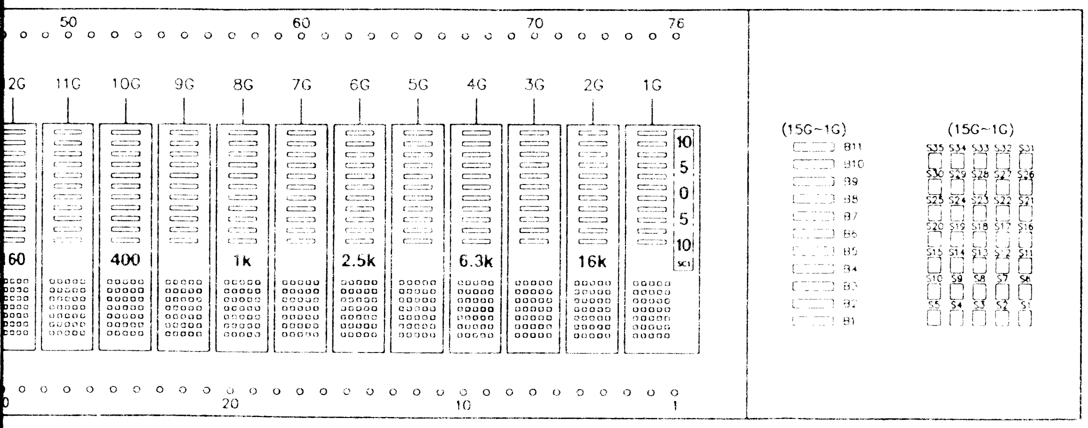
4-5. PRINTED WIRING BOARDS

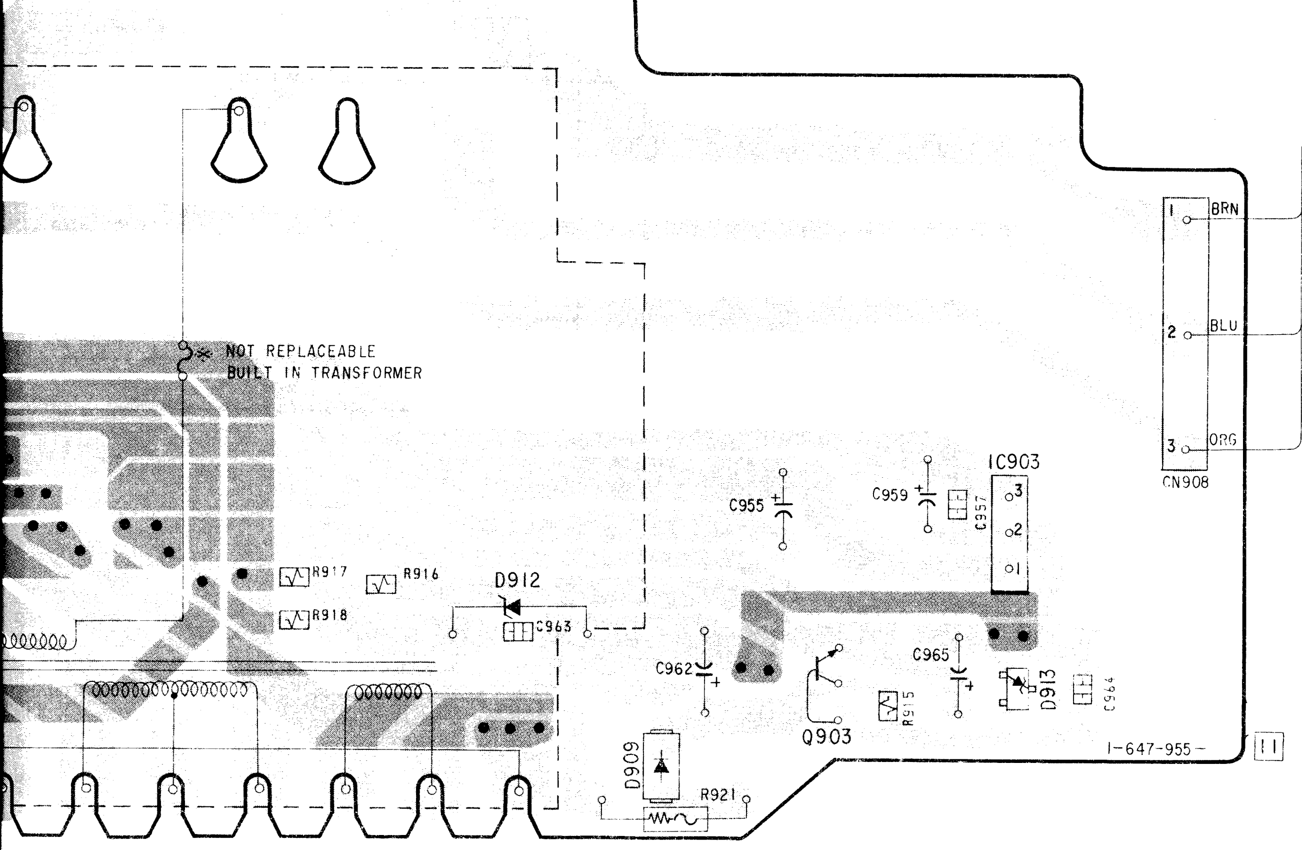
• PANEL, POWER Section

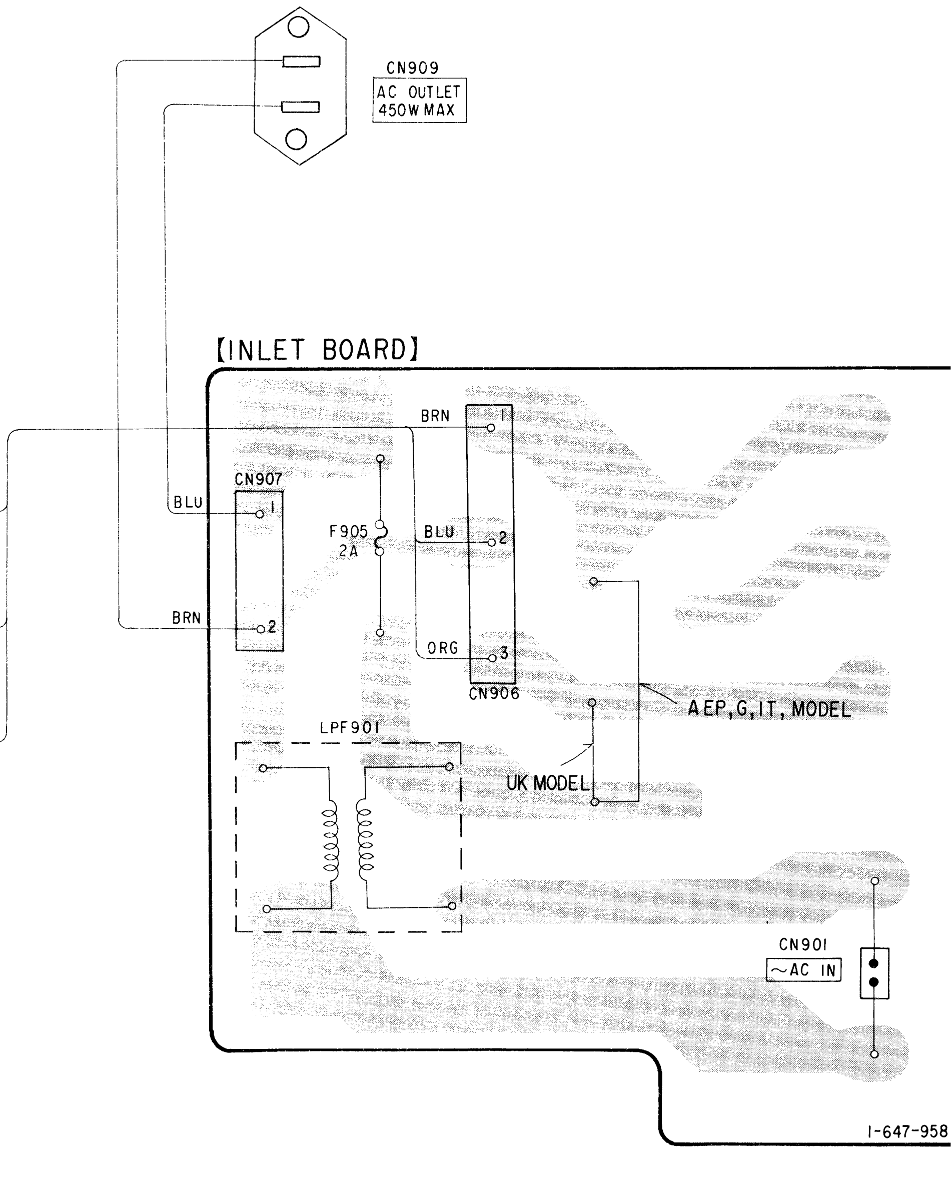
• See page 29 for Semiconductor Lead Layouts.

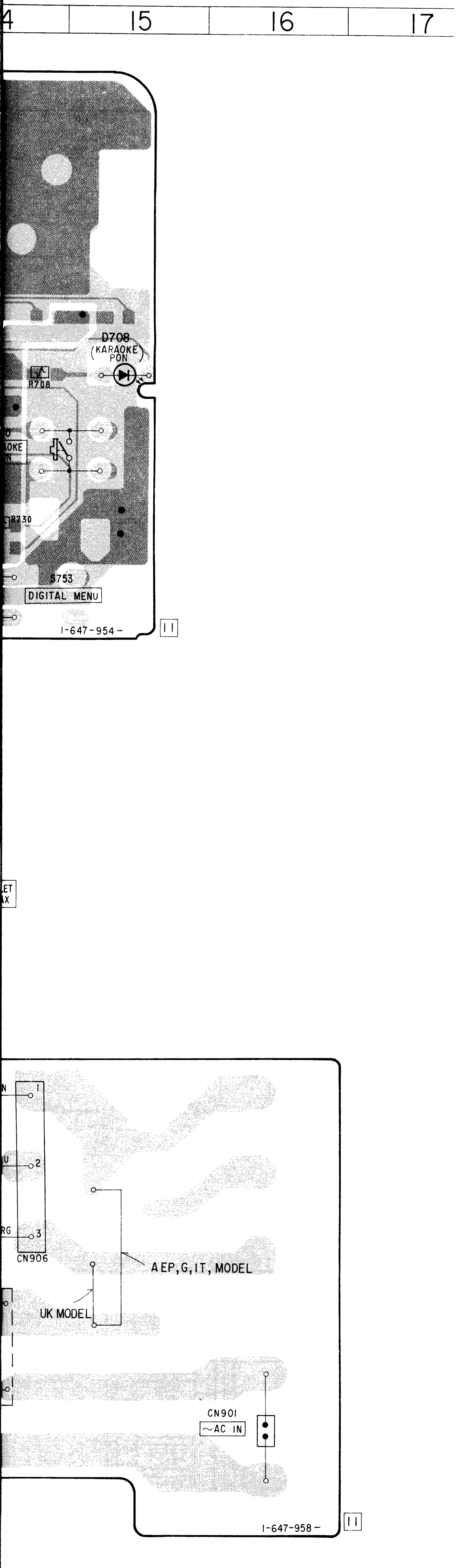

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
[PANEL BOARD]
CN701
TO MAIN BOARD (CN103)
D706(△)
D705(◁)
D704(▷)
D703(▽)
D701 (S-SUR)
D702 (EQ)
S759
S760
S739
S740
S734 ENTER P FILE
S735 S-SUR
S755 EQ
S758 SLEEP
S757 REC TIMER
S737 TIMER 2
S736 TIMER 1
CLOCK SET
CURSOR CONTROL
IC701
IC702
C788
C782
C720
FL701 FLUORESCENT INDICATOR
R705
R703
R704
R771
R783
R781
R723
R720
R722
R721
R740
R739
R736
R701
R702
R759
R760
R732
R733
R731
R735
R734
R716
R715
R713
R737
R738
FL701 FLUORESCENT INDICATOR TUBE
15G
14G
13G
12G
11G
10G
9G
8G
7G
6G
5G
63
160
400
1k
2.5k
TO MAIN BOARD (CN101)
[POWER BOARD]
CN902
C954
Q901
R902
C904
R901
C951
C901
D904
D901
D902
D906
D905
Q951
R952
R951
IC901
CN903
YEL
ORG
RED
BRN
BLU
R919
C910
D903
R920
C911
F903 2A
F904 2A
C906
C905
T901 POWER TRANSFORMER
NOT REPLACEABLE BUILT IN TRANSFORMER
R917
R916
R918
R908
R907
R905
R906
R903
R904
C903
R909
Q905
Q902
09
TO PINJACK BOARD (CN503)


7
8
9
10
11
12
13
14
15
16
FL701
FLUORESCENT INDICATOR TUBE
IC702
IC703
C789
R782
R772
C787
C784
C761
C786
C780
C783
C785
D708
(KARAOKE PON)
R708
R750
R751
R752
S750
KARAOKE PON
R730
R713
R737
R738
R712
R756
R757
S737
TIMER 2
S736
TIMER 1
CLOCK SET
S738
DISPLAY
R758
R755
S754
DIRECT
R754
R753
S753
DIGITAL MENU
1-647-954-
11


12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
1G
160
400
1k
2.5k
6.3k
16k
(15G-1G)
(15G-1G)


NOT REPLACEABLE
BUILT IN TRANSFORMER
R917
R916
R918
D912
C963
C955
C959
C957
IC903
C962
Q903
C965
D913
C964
R915
D909
R921
CN908
BRN
BLU
ORG
1-647-955-
11


CN909
AC OUTLET
450W MAX
[INLET BOARD]
BRN
BLU
CN907
F905
2A
BLU
BRN
ORG
CN906
AEP, G, IT, MODEL
UK MODEL
LPF901
CN901
~AC IN
1-647-958


15
16
17
D708
(KARAOKE PON)
R708
R730
S753
DIGITAL MENU
1-647-954-
11
1
2
3
CN906
AEP,G,IT, MODEL
UK MODEL
CN901
~AC IN
1-647-958-
11

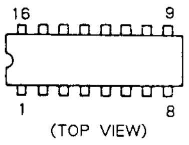
SEMICONDUCTOR LOCATION

Ref. No.	Location
D701	D-3
D702	D-4
D703	B-3
D704	B-4
D705	B-2
D706	A-3
D708	C-15
D901	I-4
D902	I-4
D903	I-4
D904	I-4
D905	I-5
D906	I-4
D909	K-10
D912	J-9
D913	K-11
IC701	B-6
IC702	B-8
IC703	B-10
IC901	I-2
IC903	J-11
Q901	H-2
Q902	K-3
Q903	K-10
Q905	K-2
Q951	I-2

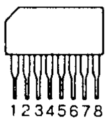
Note:
- ○— : indicated a lead wire mounted on the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.

4-6. SEMICONDUCTOR LEAD LAYOUTS

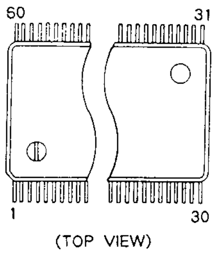
HD14053BFP
XR1091DCP


16
9
1
8
(TOP VIEW)

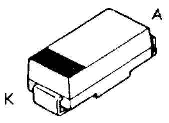
M5218AFP
M5230L-A



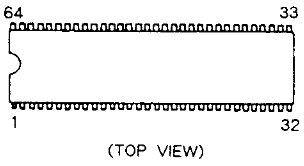
SN755723FT


60
31
1
30
(TOP VIEW)

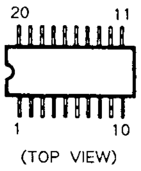
EC10DS2



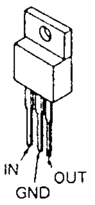
HD6433258A64P


64
33
1
32
(TOP VIEW)

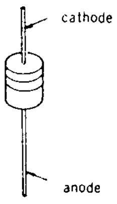
M5289FP-71NC
TC35095AF


20
11
1
10
(TOP VIEW)

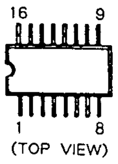
TA7805S



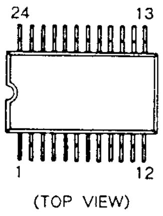
UZP-5.1B


cathode
anode

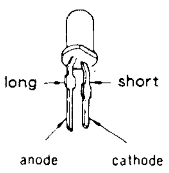
MC14052BF
SPC5243MOB


16
9
1
8
(TOP VIEW)

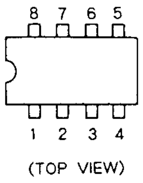
M66311FP


24
13
1
12
(TOP VIEW)

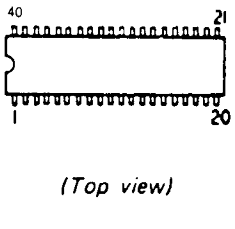
SEL2210S-CD


long
short
anode
cathode

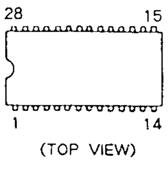
X24C01P


8 7 6 5
1 2 3 4
(TOP VIEW)

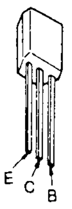
M50194AP


40
21
1
20
(Top view)

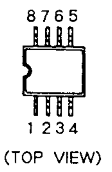
NJU7305L


28
15
1
14
(TOP VIEW)

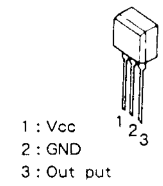
2SA1344



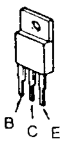
M51953BFP


8765
1234
(TOP VIEW)

PST572K

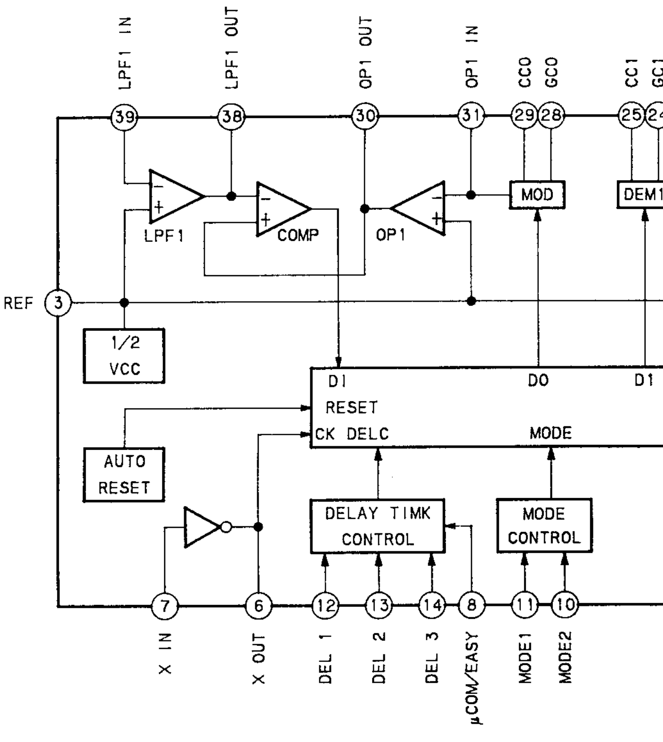

1
2
3
1 : Vcc
2 : GND
3 : Out put

2SB1094-LK
2SD2012

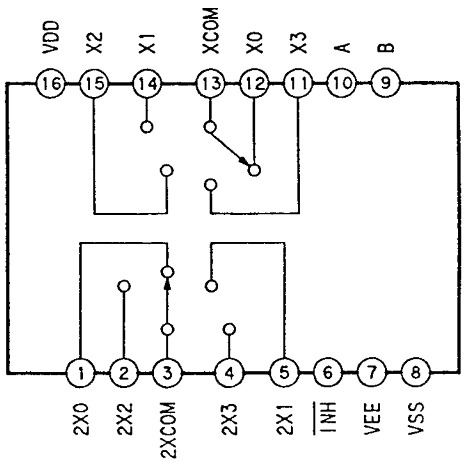


4-7. IC BLOCK DIAGRAMS

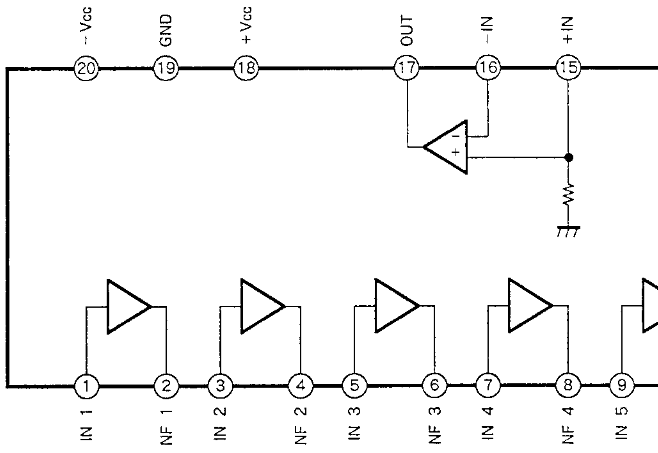
- IC201 M50194AP


LPF1 IN
LPF1 OUT
OP1 OUT
OP1 IN
CCO
GCO
CC1
39
38
30
31
29
28
25
LPF1
COMP
OP1
MOD
REF
3
1/2 VCC
DI
DO
D1
RESET
CK DELC
MODE
AUTO RESET
DELAY TIMK CONTROL
MODE CONTROL
7
6
12
13
14
8
11
10
X IN
X OUT
DEL 1
DEL 2
DEL 3
μCOM/EASY
MODE1
MODE2

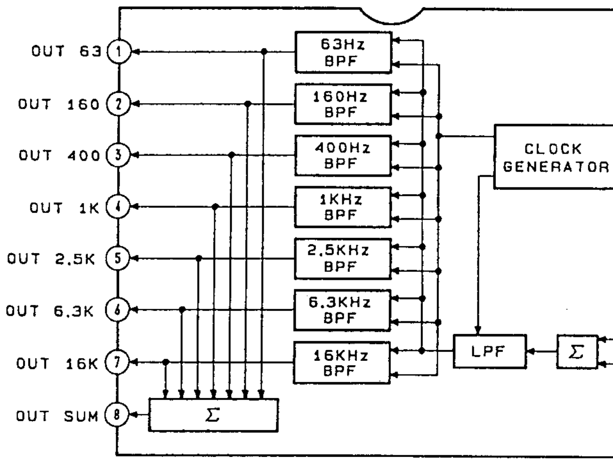
- IC202, 501 MC14052BF


VDD
X2
X1
XCOM
X0
X3
A
B
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
2X0
2X2
2XCOM
2X3
2X1
INH
VEE
VSS

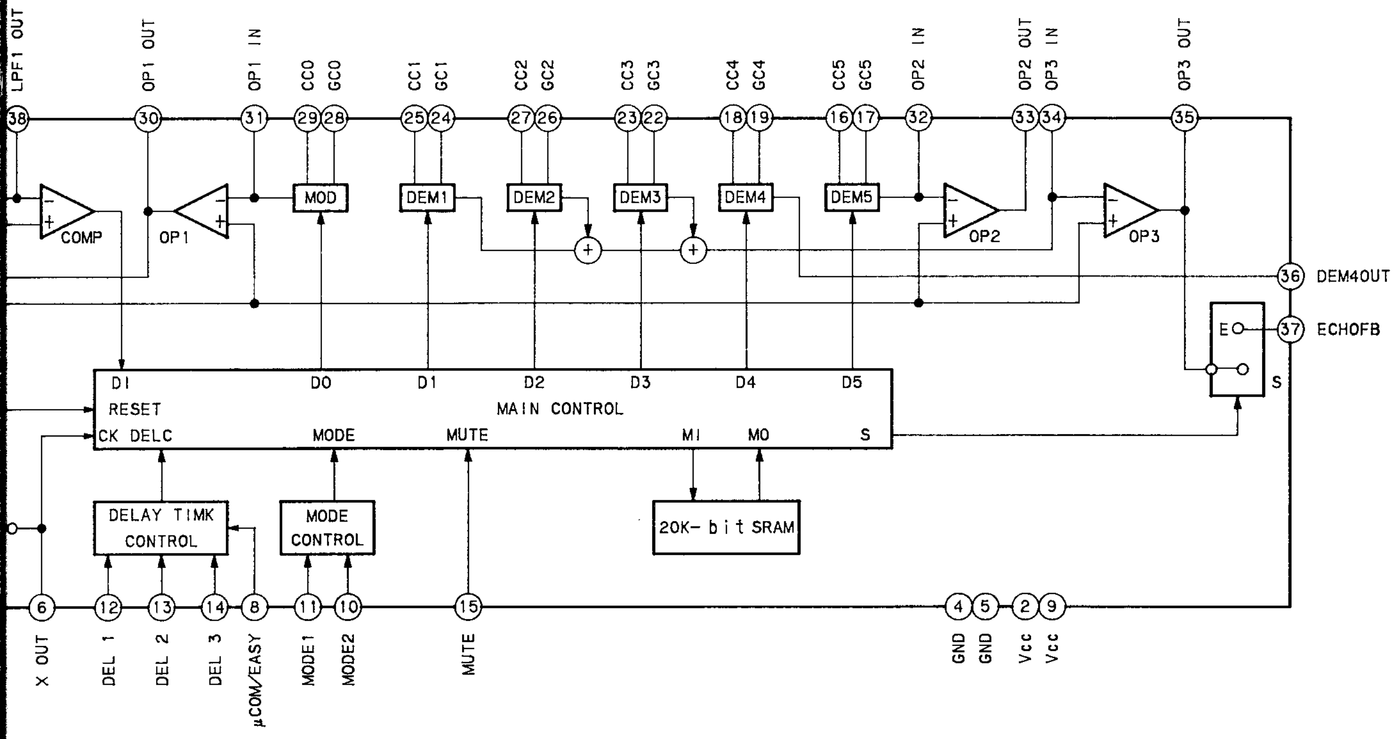
- IC301, 351 M5289FP-71NC


-Vcc
GND
+Vcc
OUT
-IN
+IN
20
19
18
17
16
15
1
2
3
4
5
6
7
8
9
IN 1
NF 1
IN 2
NF 2
IN 3
NF 3
IN 4
NF 4
IN 5

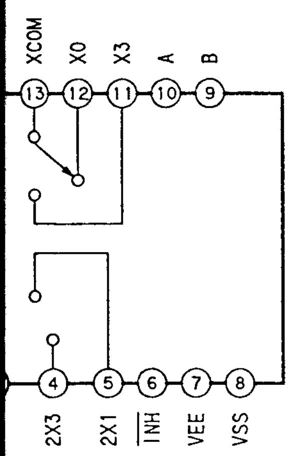
- IC420 XR1091DCP


OUT 63
1
OUT 160
2
OUT 400
3
OUT 1K
4
OUT 2.5K
5
OUT 6.3K
6
OUT 16K
7
OUT SUM
8
63Hz BPF
160Hz BPF
400Hz BPF
1KHz BPF
2.5KHz BPF
6.3KHz BPF
16KHz BPF
CLOCK GENERATOR
LPF
Σ
Σ

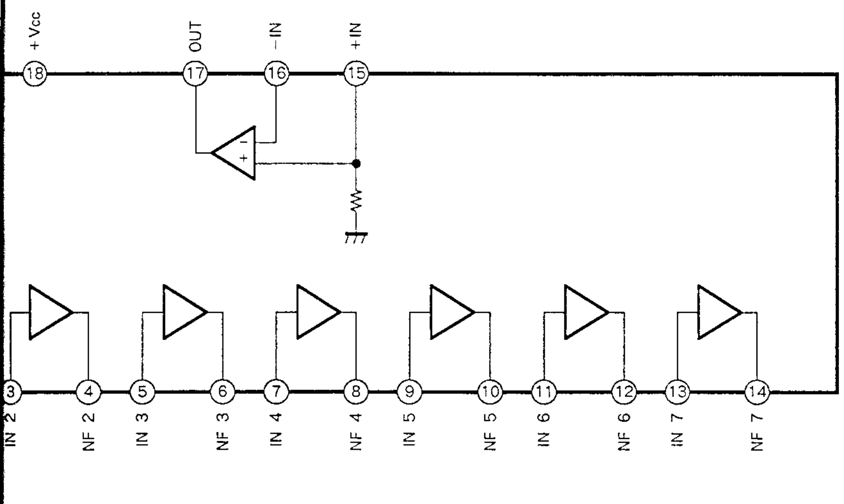
DIAGRAMS


LPF1 OUT
OP1 OUT
OP1 IN
CC0 GC0
CC1 GC1
CC2 GC2
CC3 GC3
CC4 GC4
CC5 GC5
OP2 IN
OP2 OUT
OP3 IN
OP3 OUT
COMP
OP1
MOD
DEM1
DEM2
DEM3
DEM4
DEM5
OP2
OP3
DEM4OUT
ECHOFB
E
S
DI
RESET
CK DELC
D0
D1
D2
D3
D4
D5
MAIN CONTROL
MODE
MUTE
MI
MO
DELAY TIMK CONTROL
MODE CONTROL
20K- bit SRAM
X OUT
DEL 1
DEL 2
DEL 3
μCOM/EASY
MODE1
MODE2
MUTE
GND
GND
Vcc
Vcc

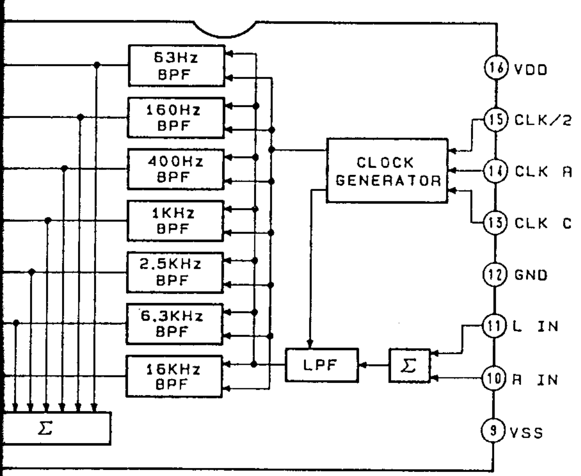
052BF


XCOM
X0
X3
A
B
2X3
2X1
INH
VEE
VSS

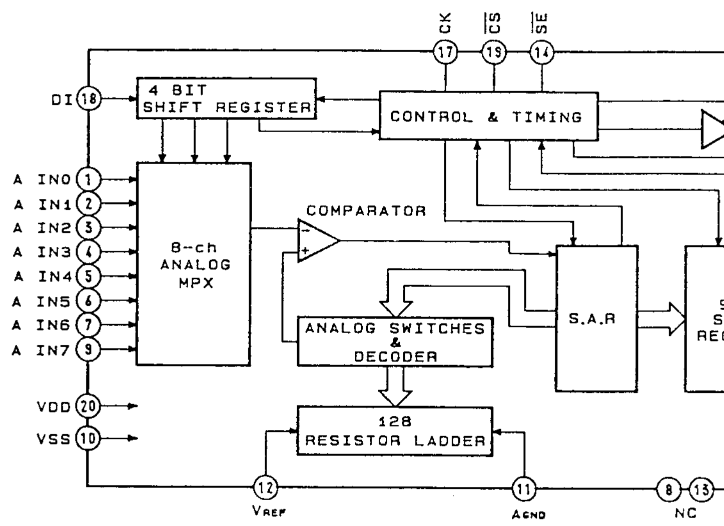
9FP-71NC


+Vcc
OUT
-IN
+IN
IN 2
NF 2
IN 3
NF 3
IN 4
NF 4
IN 5
NF 5
IN 6
NF 6
IN 7
NF 7

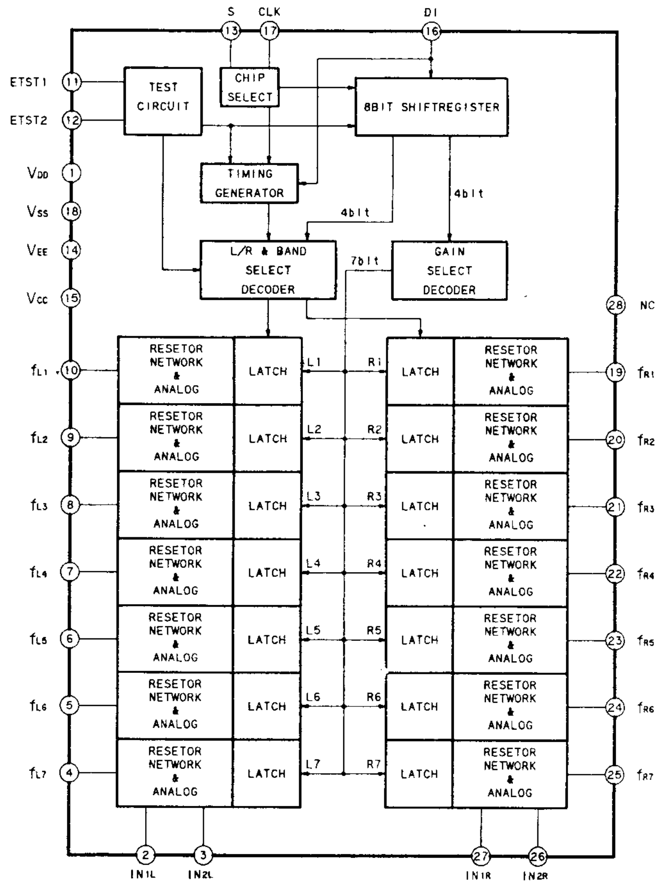
P


63Hz BPF
160Hz BPF
400Hz BPF
1KHz BPF
2.5KHz BPF
6.3KHz BPF
16KHz BPF
Σ
CLOCK GENERATOR
LPF
Σ
VDD
CLK/2
CLK R
CLK C
GND
L IN
R IN
VSS

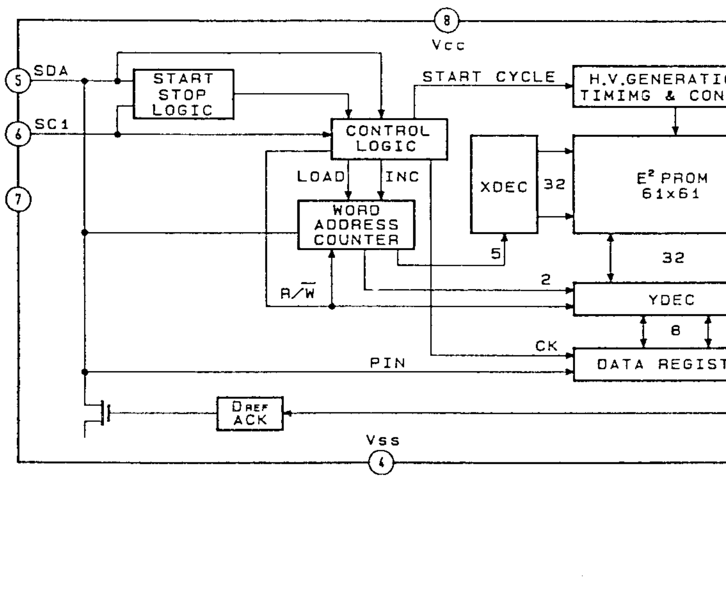
- IC460 TC35095AF

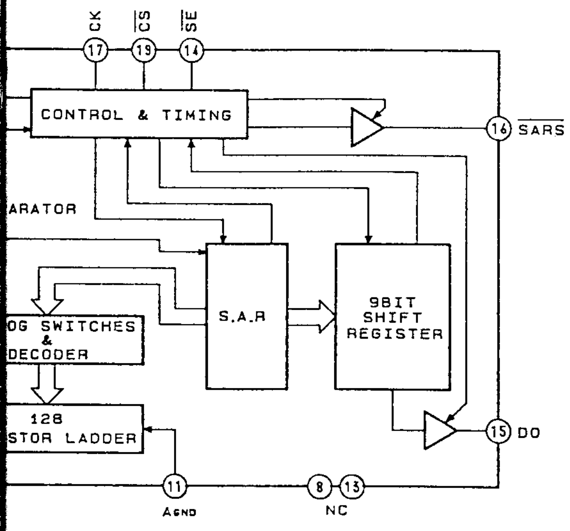

CK
CS
SE
DI
4 BIT SHIFT REGISTER
CONTROL & TIMING
A IN0
A IN1
A IN2
A IN3
A IN4
A IN5
A IN6
A IN7
8-ch ANALOG MPX
COMPARATOR
ANALOG SWITCHES & DECODER
S.A.R
128 RESISTOR LADDER
VDD
VSS
VREF
AGND
NC

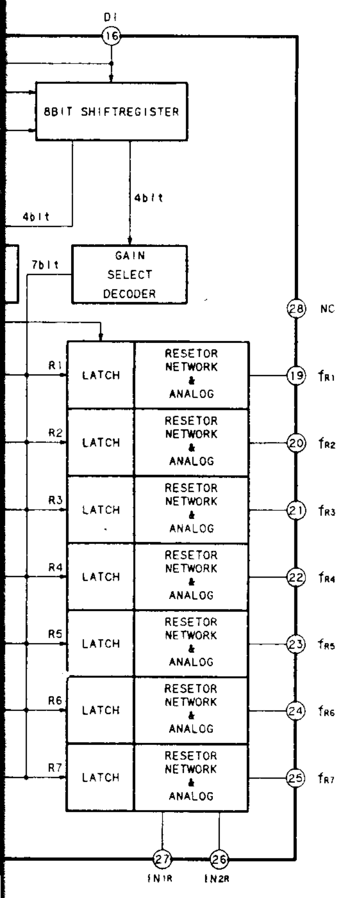
- IC470 NJU7305L

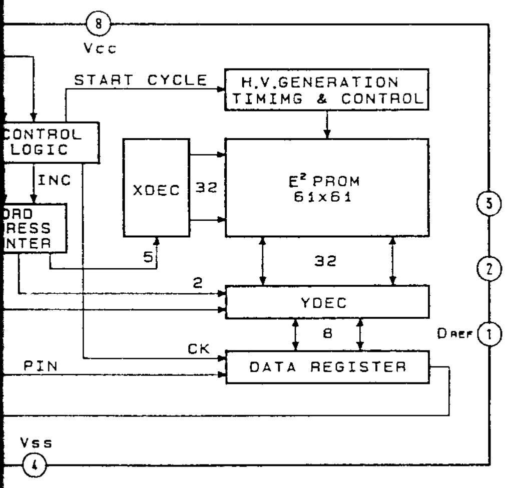

S
CLK
DI
ETST1
ETST2
TEST CIRCUIT
CHIP SELECT
8BIT SHIFTREGISTER
TIMING GENERATOR
4bit
4bit
7bit
L/R & BAND SELECT DECODER
GAIN SELECT DECODER
VDD
VSS
VEE
VCC
NC
RESETOR NETWORK & ANALOG
LATCH
L1
L2
L3
L4
L5
L6
L7
R1
R2
R3
R4
R5
R6
R7
fL1
fL2
fL3
fL4
fL5
fL6
fL7
fR1
fR2
fR3
fR4
fR5
fR6
fR7
IN1L
IN2L
IN1R
IN2R

- IC620 X24C01P

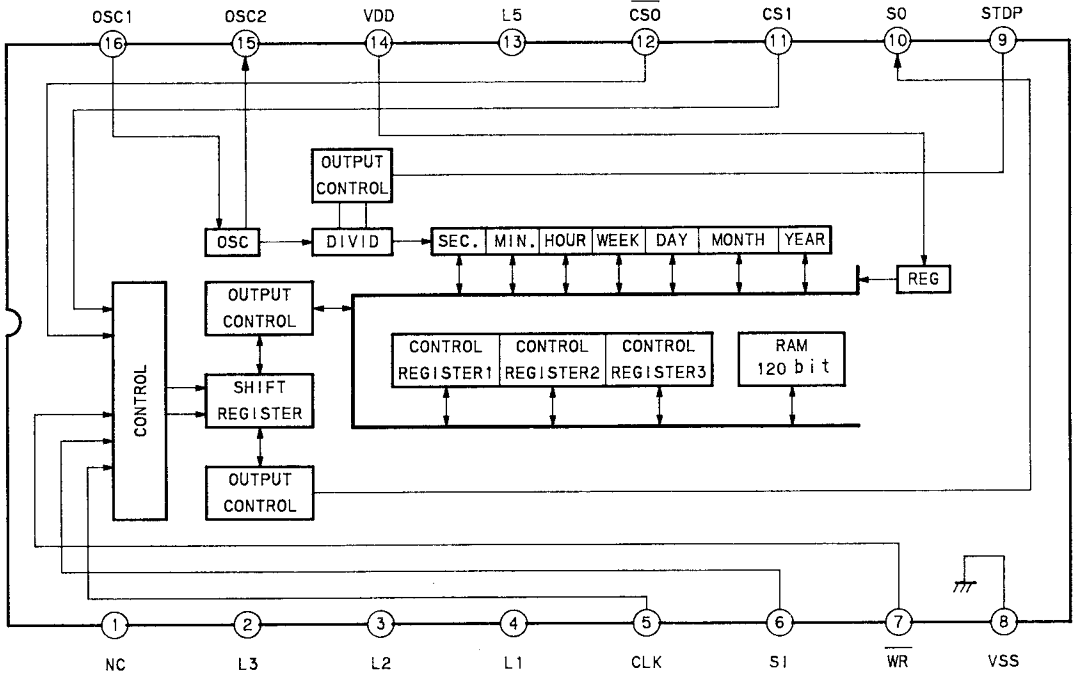

Vcc
SDA
SC1
START STOP LOGIC
START CYCLE
H.V.GENERATI
TIMIMG & CON
CONTROL LOGIC
LOAD
INC
WORD ADDRESS COUNTER
XDEC
32
E² PROM 61x61
5
32
2
R/W
YDEC
8
CK
PIN
DATA REGIST
DREF ACK
Vss


CK
$\overline{CS}$
$\overline{SE}$
17
19
14
CONTROL & TIMING
14 $\overline{SARS}$
ARATOR
S.A.R
9BIT SHIFT REGISTER
OG SWITCHES & DECODER
128
STOR LADDER
15 DO
11
AGND
8 13
NC

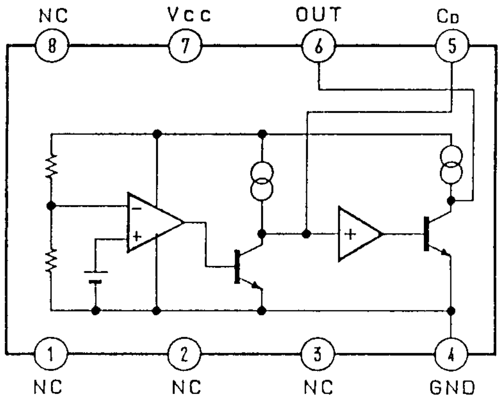

DI
16
8BIT SHIFTREGISTER
4bit
4bit
7bit
GAIN SELECT DECODER
28 NC
R1 LATCH RESETOR NETWORK & ANALOG 19 fR1
R2 LATCH RESETOR NETWORK & ANALOG 20 fR2
R3 LATCH RESETOR NETWORK & ANALOG 21 fR3
R4 LATCH RESETOR NETWORK & ANALOG 22 fR4
R5 LATCH RESETOR NETWORK & ANALOG 23 fR5
R6 LATCH RESETOR NETWORK & ANALOG 24 fR6
R7 LATCH RESETOR NETWORK & ANALOG 25 fR7
27 IN1R
26 IN2R


8
Vcc
START CYCLE
H.V.GENERATION TIMIMG & CONTROL
CONTROL LOGIC
INC
XDEC
32
E² PROM 61x61
ORD RESS NTER
5
32
2
YDEC
8
CK
DATA REGISTER
PIN
3
2
DREF 1
Vss
4

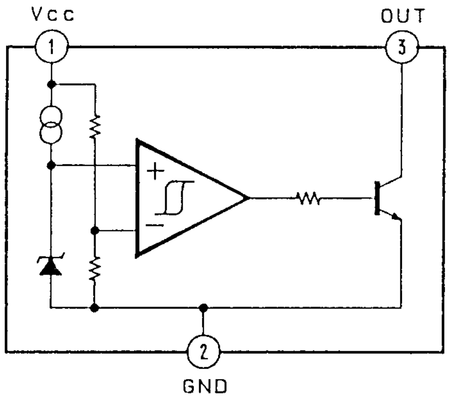
- IC621 SPC5243MOB


OSC1 16
OSC2 15
VDD 14
L5 13
$\overline{CSO}$ 12
CS1 11
SO 10
STDP 9
OUTPUT CONTROL
OSC
DIVID
SEC.
MIN.
HOUR
WEEK
DAY
MONTH
YEAR
REG
CONTROL
OUTPUT CONTROL
CONTROL REGISTER1
CONTROL REGISTER2
CONTROL REGISTER3
RAM 120 bit
SHIFT REGISTER
OUTPUT CONTROL
1 NC
2 L3
3 L2
4 L1
5 CLK
6 SI
7 $\overline{WR}$
8 VSS

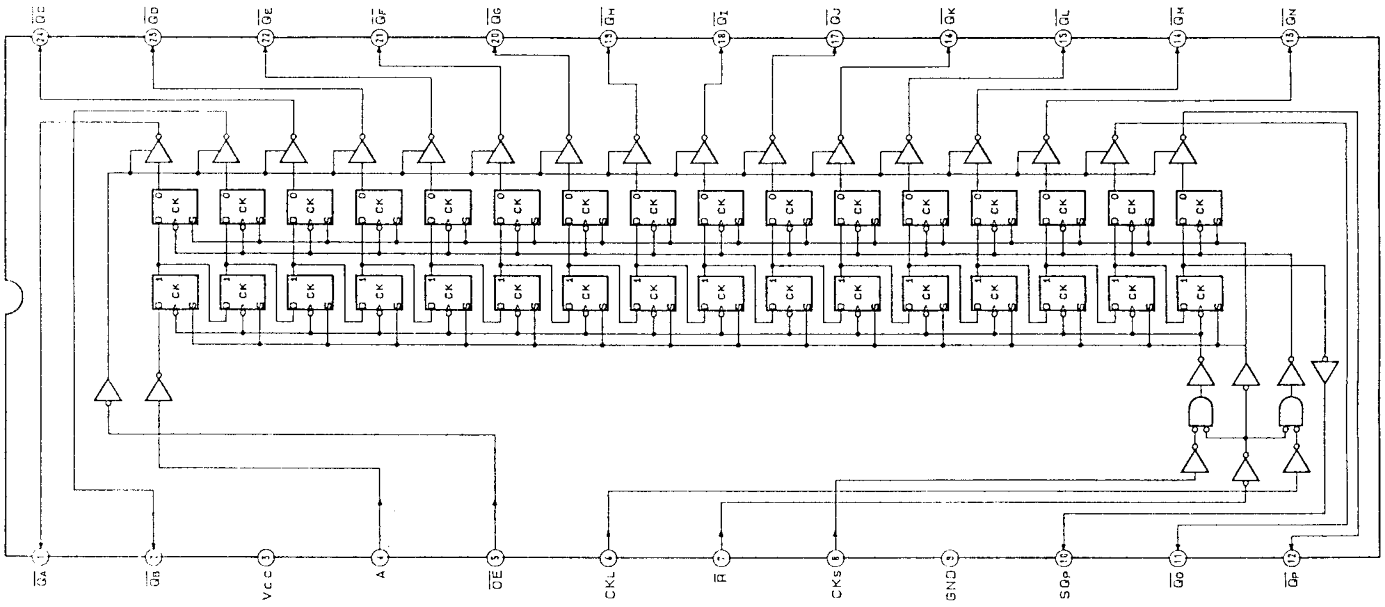
- IC630 M51953BFP


NC 8
Vcc 7
OUT 6
CD 5
1 NC
2 NC
3 NC
4 GND

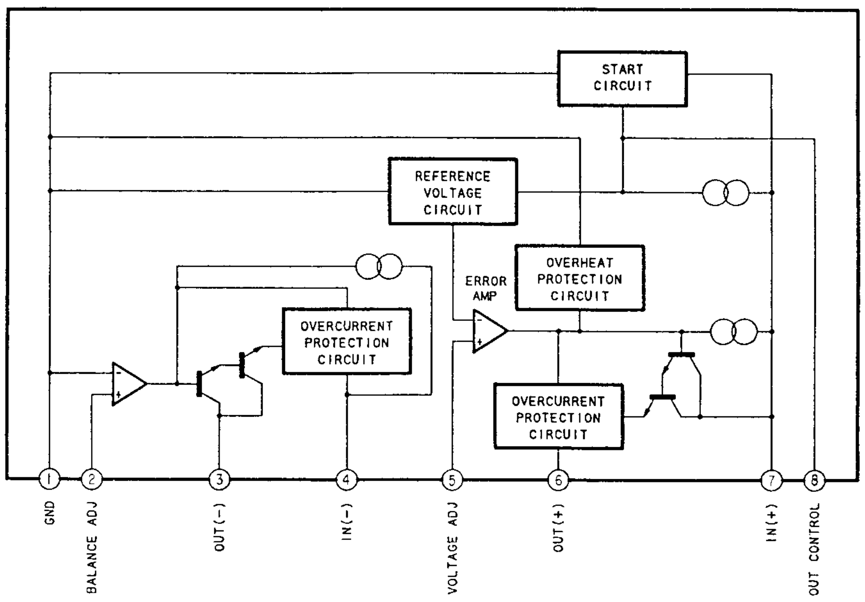
- IC640 PST572K


Vcc 1
OUT 3
2 GND

- IC701 M66311FP


$\overline{GC}$ 24
$\overline{GD}$ 23
$\overline{GE}$ 22
$\overline{GF}$ 21
$\overline{GG}$ 20
$\overline{GH}$ 19
$\overline{GI}$ 18
$\overline{GJ}$ 17
$\overline{GK}$ 16
$\overline{GL}$ 15
$\overline{GM}$ 14
$\overline{GN}$ 13
CK
1 $\overline{GA}$
2 $\overline{GB}$
3 Vcc
4 A
5 $\overline{OE}$
6 CKL
7 $\overline{R}$
8 CKS
9 GND
10 SQP
11 $\overline{GO}$
12 $\overline{GP}$

- IC901 M5230L-A


START CIRCUIT
REFERENCE VOLTAGE CIRCUIT
OVERHEAT PROTECTION CIRCUIT
ERROR AMP
OVERCURRENT PROTECTION CIRCUIT
OVERCURRENT PROTECTION CIRCUIT
1 GND
2 BALANCE ADJ
3 OUT(−)
4 IN(−)
5 VOLTAGE ADJ
6 OUT(+)
7 IN(+)
8 OUT CONTROL

SECTION 5

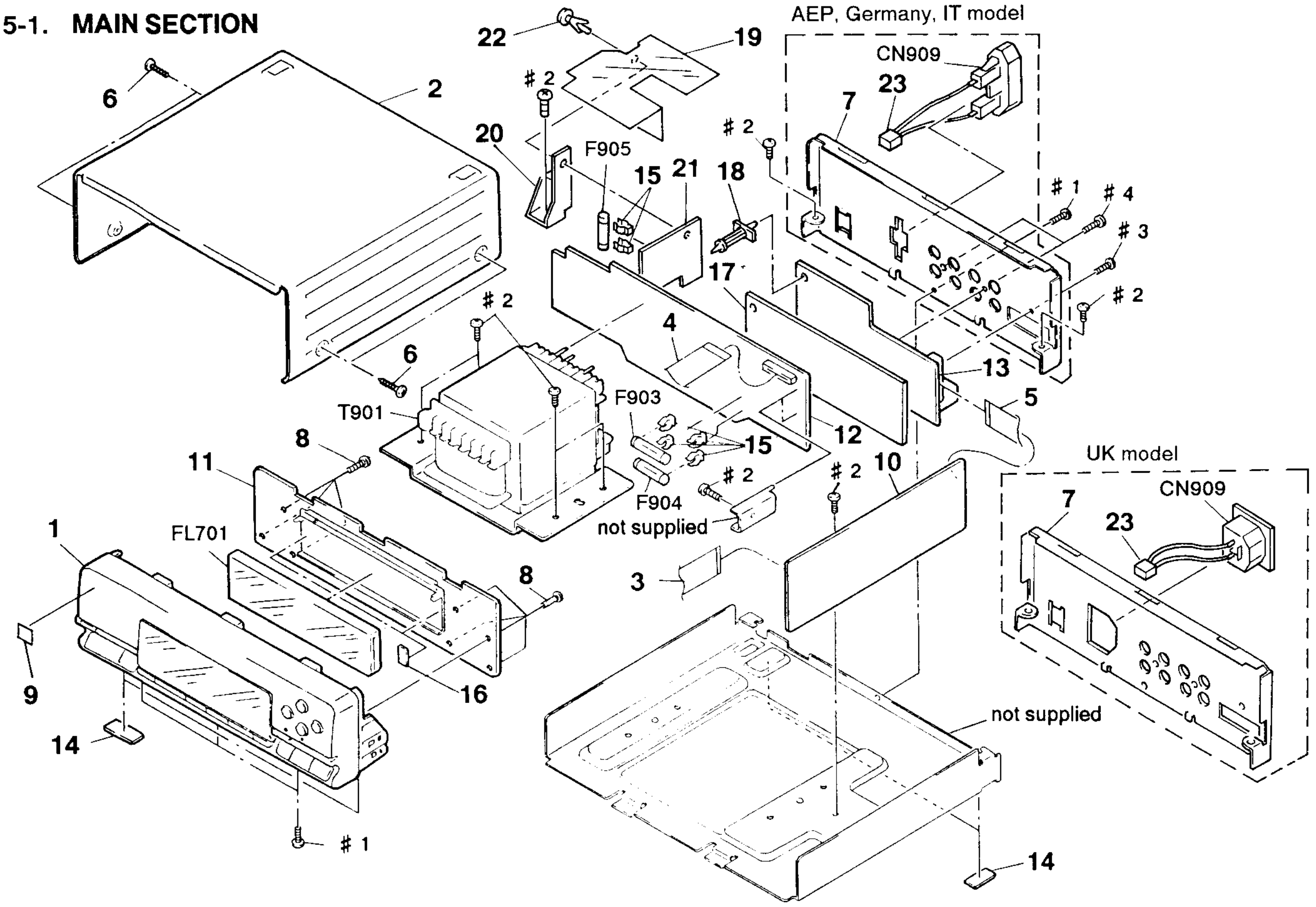
EXPLODED VIEW

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Italian, Germany model is abbreviated as IT, G.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. MAIN SECTION



Ref. No.	Part No.	Description	Remark
1	X-4943-455-1	PANEL ASSY, FRONT	
* 2	4-954-198-41	CASE	
3	1-690-094-11	WIRE, FLAT TYPE (15 CORE)	
4	1-590-241-11	WIRE, FLAT TYPE (9 CORE)	
5	1-590-036-31	WIRE, FLAT TYPE (13 CORE)	
6	3-363-099-21	SCREW (CASE 3 TP2)	
* 7	4-957-203-11	PANEL, BACK (AEP)	
*	4-957-203-22	PANEL, BACK (Germany)	
*	4-957-203-32	PANEL, BACK (UK)	
*	4-957-203-41	PANEL, BACK (IT)	
8	4-951-620-01	SCREW (2.6X8), +BVTP	
9	3-703-710-41	STICKER, SONY SYMBOL (12)	
* 10	A-4360-197-A	MAIN BOARD, COMPLETE (AEP)	
*	A-4360-203-A	MAIN BOARD, COMPLETE (Germany)	
*	A-4360-212-A	MAIN BOARD, COMPLETE (UK)	
*	A-4360-219-A	MAIN BOARD, COMPLETE (IT)	
* 11	A-4360-198-A	PANEL BOARD, COMPLETE (AEP)	
*	A-4360-204-A	PANEL BOARD, COMPLETE (Germany)	
*	A-4360-214-A	PANEL BOARD, COMPLETE (UK)	
*	A-4360-220-A	PANEL BOARD, COMPLETE (IT)	
* 12	A-4360-199-A	POWER BOARD, COMPLETE (AEP)	
*	A-4360-205-A	POWER BOARD, COMPLETE (Germany)	
*	A-4360-215-A	POWER BOARD, COMPLETE (UK)	
*	A-4360-221-A	POWER BOARD, COMPLETE (IT)	
* 13	A-4360-200-A	PIN JACK BOARD, COMPLETE (AEP)	
*	A-4360-210-A	PIN JACK BOARD, COMPLETE (Germany)	
*	A-4360-216-A	PIN JACK BOARD, COMPLETE (UK)	
*	A-4360-222-A	PIN JACK BOARD, COMPLETE (IT)	
14	4-930-336-31	FOOT (FELT)	
15	1-533-213-11	HOLDER, FUSE	
16	4-932-810-11	CUSHION (FL)	
* 17	A-4360-202-A	REVERBERATION BOARD, COMPLETE	
18	4-924-098-91	HOLDER, PC BOARD	
* 19	4-958-572-01	COVER	
* 20	4-954-242-01	BRACKET (IN)	
* 21	1-647-958-11	INLET BOARD	
22	4-812-134-00	RIVET NYLON, 3.5	
23	1-751-216-31	LEAD (WITH CONNECTOR) (2 CORE)	
⚠CN909	1-526-751-00	OUTLET, AC (UK)	
⚠	1-526-794-11	OUTLET, AC (AEP/G/IT)	
⚠F903	1-532-203-00	FUSE, TIME-LAG (2.0A)	
⚠F904	1-532-203-00	FUSE, TIME-LAG (2.0A)	
⚠F905	1-532-203-00	FUSE, TIME-LAG (2.0A)	
FL701	1-519-649-11	INDICATOR TUBE, FLUORESCENT	
⚠T901	1-423-330-11	TRANSFORMER, POWER (AEP)	
⚠	1-423-560-11	TRANSFORMER, POWER (UK)	

INLET **MAIN**

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Italian, Germany model is abbreviated as IT, G.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Hardware (# mark) list is given in the last of this parts list.

Ref. No.	Part No.	Description			Remark
*	1-647-958-11	INLET BOARD			
		***********			
		< CONNECTOR >			
⚠CN901	1-526-931-11	INLET, AC (~AC IN)			
CN907	1-564-321-00	PIN, CONNECTOR 2P			
CN908	1-564-687-11	PIN, CONNECTOR 3P			
		< FILTER, LINE >			
⚠LPF901	1-424-485-11	FILTER, LINE			
**					
*	A-4360-197-A	MAIN BOARD, COMPLETE (AEP)			
		**************************			
*	A-4360-203-A	MAIN BOARD, COMPLETE (Germany)			
		******************************			
*	A-4360-212-A	MAIN BOARD, COMPLETE (UK)			
		*************************			
*	A-4360-219-A	MAIN BOARD, COMPLETE (IT)			
		*************************			
	7-685-871-01	SCREW +BVTT 3X6 (S)			
		< CAPACITOR >			
C101	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C102	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C103	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C104	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-126-059-11	ELECT	10uF	20%	50V
C151	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C152	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C153	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C154	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C155	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C156	1-126-059-11	ELECT	10uF	20%	50V
C160	1-124-442-00	ELECT	330uF	20%	6.3V
C161	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C162	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-124-442-00	ELECT	330uF	20%	6.3V
C165	1-124-442-00	ELECT	330uF	20%	6.3V
C166	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C243	1-126-301-11	ELECT	1uF	20%	50V
C244	1-126-301-11	ELECT	1uF	20%	50V
C252	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C253	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C301	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C302	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C303	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C304	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C305	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C306	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C307	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C308	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C309	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C310	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C311	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C312	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C313	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C314	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V
C320	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C322	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C323	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C351	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C352	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C353	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C354	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C355	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C356	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C357	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C358	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C359	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C360	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C361	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C362	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C363	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C364	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V
C370	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C372	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C373	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C401	1-126-059-11	ELECT	10uF	20%	50V
C402	1-126-059-11	ELECT	10uF	20%	50V
C420	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C421	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C422	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C431	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C451	1-126-059-11	ELECT	10uF	20%	50V
C452	1-126-059-11	ELECT	10uF	20%	50V
C460	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C461	1-126-161-11	ELECT	2.2uF	20%	50V
C470	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C471	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C472	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C473	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C602	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C603	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C604	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C605	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C609	1-136-173-00	FILM	0.47uF	5%	50V
C610	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C620	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C621	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C622	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C630	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C631	1-164-346-11	CERAMIC CHIP	1uF		16V
C633	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C634	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C640	1-124-463-00	ELECT	0.1uF	20%	50V
C641	1-164-232-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN101	1-568-828-11	SOCKET, CONNECTOR 9P
* CN102	1-568-832-11	SOCKET, CONNECTOR 13P
* CN103	1-568-834-11	SOCKET, CONNECTOR 15P
* CN104	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P
CN105	1-573-095-21	SOCKET, CONNECTOR 15P

< DIODE >

Ref. No.	Part No.	Description	
D101	8-719-990-39	DIODE	DCB010
D601	8-719-800-76	DIODE	1SS226
D630	8-719-800-76	DIODE	1SS226
D640	8-719-990-39	DIODE	DCB010

< IC >

Ref. No.	Part No.	Description	
IC101	8-759-636-55	IC	M5218AFP
IC102	8-759-300-71	IC	HD14053BFP
IC103	8-759-636-55	IC	M5218AFP
IC301	8-759-087-18	IC	M5289FP-71NC
IC351	8-759-087-18	IC	M5289FP-71NC
IC420	8-759-991-11	IC	XR1091DCP
IC430	8-759-300-71	IC	HD14053BFP
IC460	8-759-245-58	IC	TC35095AF
IC470	8-759-081-01	IC	NJU7305L
IC601	8-759-164-67	IC	HD6433258A64P
IC620	8-759-500-31	IC	X24C01P
IC621	8-759-082-94	IC	SPC5243MOB
IC630	8-759-634-43	IC	M51953BFP
IC640	8-759-520-98	IC	PST572K

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q101	8-729-805-41	TRANSISTOR	2SC3398
Q102	8-729-805-41	TRANSISTOR	2SC3398
Q401	8-729-107-43	TRANSISTOR	2SC3624-L18
Q451	8-729-107-43	TRANSISTOR	2SC3624-L18
Q460	8-729-805-65	TRANSISTOR	2SA1344
Q601	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q630	8-729-120-28	TRANSISTOR	2SC1623-L5L6

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R102	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R103	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R104	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R106	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R110	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R111	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R112	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R113	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R152	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R153	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R154	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R155	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R156	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R250	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R251	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R252	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R254	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R256	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R301	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R302	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R303	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R304	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R305	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R306	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R307	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R320	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R351	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R352	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R353	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R354	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R355	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R356	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R357	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R370	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R401	1-216-033-00	METAL CHIP	220	5%	1/10W	

MAIN PANEL

Ref. No.	Part No.	Description				Remark
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R421	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R422	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R423	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R424	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R425	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R451	1-216-033-00	METAL CHIP	220	5%	1/10W	
R452	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R460	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R461	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R462	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R601	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R603	1-216-295-00	METAL CHIP	0	5%	1/10W	
R604	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R605	1-216-025-00	METAL CHIP	100	5%	1/10W	
R606	1-216-025-00	METAL CHIP	100	5%	1/10W	
R610	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R615	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R618	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R619	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R623	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R624	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R625	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R626	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R627	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R628	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R629	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R630	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R631	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R632	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R633	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R635	1-216-025-00	METAL CHIP	100	5%	1/10W	
R636	1-216-025-00	METAL CHIP	100	5%	1/10W	
R640	1-216-041-00	METAL CHIP	470	5%	1/10W	
R650	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R651	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R652	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R655	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R656	1-216-049-00	METAL CHIP	1K	5%	1/10W	
		< VIBRATOR >				
X600	1-567-928-11	VIBLATOR, CERAMIC (20MHz)				
X620	1-567-098-00	OSCILLATOR, CRYSTAL (32.768kHz)				

Ref. No.	Part No.	Description				Remark
**						
*	A-4360-198-A	PANEL BOARD, COMPLETE (AEP)				
		***************************				
*	A-4360-204-A	PANEL BOARD, COMPLETE (Germany)				
		*******************************				
*	A-4360-214-A	PANEL BOARD, COMPLETE (UK)				
		**************************				
*	A-4360-220-A	PANEL BOARD, COMPLETE (IT)				
		**************************				
*	4-932-810-11	CUSHION (FL)				
		< CAPACITOR >				
C720	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C780	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C781	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C782	1-126-177-11	ELECT	100uF	20%	10V	
C783	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C784	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C785	1-126-177-11	ELECT	100uF	20%	10V	
C786	1-136-165-00	FILM	0.1uF	5%	50V	
C787	1-136-165-00	FILM	0.1uF	5%	50V	
C788	1-136-165-00	FILM	0.1uF	5%	50V	
C789	1-136-165-00	FILM	0.1uF	5%	50V	
		< CONNECTOR >				
* CN701	1-568-834-11	SOCKET, CONNECTOR 15P				
		< DIODE >				
D701	8-719-301-37	LED SEL2210S-CD (S-SUR)				
D702	8-719-301-37	LED SEL2210S-CD (EQ)				
D703	8-719-301-37	LED SEL2210S-CD (▽)				
D704	8-719-301-37	LED SEL2210S-CD (▷)				
D705	8-719-301-37	LED SEL2210S-CD (◁)				
D706	8-719-301-37	LED SEL2210S-CD (△)				
D708	8-719-301-37	LED SEL2210S-CD (KARAOKE PON)				
		< INDICATOR TUBE >				
FL701	1-519-649-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC701	8-759-636-56	IC M66311FP				
IC702	8-759-094-11	IC SN755723FT				
IC703	8-759-094-11	IC SN755723FT				
		< RESISTOR >				
R701	1-216-043-00	METAL CHIP	560	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R702	1-216-043-00	METAL CHIP 560 5% 1/10W	
R703	1-216-043-00	METAL CHIP 560 5% 1/10W	
R704	1-216-043-00	METAL CHIP 560 5% 1/10W	
R705	1-216-043-00	METAL CHIP 560 5% 1/10W	
R706	1-216-043-00	METAL CHIP 560 5% 1/10W	
R708	1-216-043-00	METAL CHIP 560 5% 1/10W	
R712	1-216-037-00	METAL CHIP 330 5% 1/10W	
R713	1-216-037-00	METAL CHIP 330 5% 1/10W	
R715	1-216-037-00	METAL CHIP 330 5% 1/10W	
R716	1-216-037-00	METAL CHIP 330 5% 1/10W	
R720	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R721	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R722	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R723	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R730	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R731	1-216-025-00	METAL CHIP 100 5% 1/10W	
R732	1-216-027-00	METAL CHIP 120 5% 1/10W	
R733	1-216-027-00	METAL CHIP 120 5% 1/10W	
R734	1-216-029-00	METAL CHIP 150 5% 1/10W	
R735	1-216-045-00	METAL CHIP 680 5% 1/10W	
R736	1-216-037-00	METAL CHIP 330 5% 1/10W	
R737	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R738	1-216-047-00	METAL CHIP 820 5% 1/10W	
R739	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R740	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R750	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R751	1-216-025-00	METAL CHIP 100 5% 1/10W	
R752	1-216-027-00	METAL CHIP 120 5% 1/10W	
R753	1-216-027-00	METAL CHIP 120 5% 1/10W	
R754	1-216-029-00	METAL CHIP 150 5% 1/10W	
R755	1-216-045-00	METAL CHIP 680 5% 1/10W	
R756	1-216-037-00	METAL CHIP 330 5% 1/10W	
R757	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R758	1-216-047-00	METAL CHIP 820 5% 1/10W	
R759	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R760	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R771	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R772	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R780	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R781	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R782	1-216-025-00	METAL CHIP 100 5% 1/10W	
R783	1-216-049-00	METAL CHIP 1K 5% 1/10W	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S734	1-554-303-21	SWITCH, TACTILE (ENTER P. FILE)	
S735	1-554-303-21	SWITCH, TACTILE (S-SUR)	
S736	1-570-101-61	SWITCH, KEY BOARD (TIMER 1) (CLOCK SET)	
S737	1-570-101-61	SWITCH, KEY BOARD (TIMER 2) (CLOCK SET)	
S738	1-554-303-21	SWITCH, TACTILE (DISPLAY)	
S739	1-554-303-21	SWITCH, TACTILE (▷)	
S740	1-554-303-21	SWITCH, TACTILE (▽)	
S750	1-554-303-21	SWITCH, TACTILE (KARAOKE PON)	
S753	1-554-303-21	SWITCH, TACTILE (DIGITAL MENU)	
S754	1-554-303-21	SWITCH, TACTILE (DIRECT)	
S755	1-554-303-21	SWITCH, TACTILE (EQ)	
S757	1-570-101-61	SWITCH, KEY BOARD (REC TIMER)	
S758	1-570-101-61	SWITCH, KEY BOARD (SLEEP)	
S759	1-554-303-21	SWITCH, TACTILE (△)	
S760	1-554-303-21	SWITCH, TACTILE (◁)	

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* A-4360-200-A PIN JACK BOARD, COMPLETE (AEP)
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* A-4360-210-A PIN JACK BOARD, COMPLETE (Germany)
****

* A-4360-216-A PIN JACK BOARD, COMPLETE (UK)
****

* A-4360-222-A PIN JACK BOARD, COMPLETE (IT)
****

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C501	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C502	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C503	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C504	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C505	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C506	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C523	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C524	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C527	1-124-994-11	ELECT	100uF	20%	10V	
C528	1-124-994-11	ELECT	100uF	20%	10V	
C529	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C530	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C533	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C534	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C535	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C536	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C551	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C552	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C553	1-126-163-11	ELECT	4.7uF	20%	50V	
C554	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V	
C555	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	
C556	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C557	1-126-161-11	ELECT	2.2uF	20%	50V	
C558	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C571	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C572	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C573	1-126-163-11	ELECT	4.7uF	20%	50V	
C574	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V	

PIN JACK POWER

Ref. No.	Part No.	Description	Remark
C575	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C576	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C577	1-126-161-11	ELECT 2.2uF 20% 50V	
C578	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
		< CONNECTOR >	
CN501	1-580-740-31	SOCKET, CONNECTOR 17P (SYSTEM CONTROL)	
* CN502	1-568-856-11	SOCKET, CONNECTOR 13P	
CN503	1-695-009-11	PIN, CONNECTOR (PC BOARD) 9P	
* CN504	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	
		< IC >	
IC501	8-759-009-06	IC MC14052BF	
IC502	8-759-300-71	IC HD14053BFP	
IC551	8-759-636-55	IC M5218AFP	
		< JACK >	
J501	1-565-304-41	JACK, PIN 4P (PHONO IN, MD/DAT OUT)	
J502	1-565-304-41	JACK, PIN 4P (VIDEO IN, MD/DAT IN)	
		< JUMPER RESISTOR >	
JR501	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< RESISTOR >	
R501	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R502	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R505	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R506	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R507	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R508	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R511	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R512	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R523	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R524	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R529	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R530	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R538	1-216-025-00	METAL CHIP 100 5% 1/10W	
R539	1-216-025-00	METAL CHIP 100 5% 1/10W	
R540	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R541	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R542	1-216-025-00	METAL CHIP 100 5% 1/10W	
R543	1-216-025-00	METAL CHIP 100 5% 1/10W	
R544	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R551	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R552	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R553	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R554	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R555	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R556	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R571	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R572	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R573	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R574	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R575	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R576	1-216-075-00	METAL CHIP 12K 5% 1/10W	

****

Ref. No.	Part No.	Description	Remark
*	A-4360-199-A	POWER BOARD, COMPLETE (AEP) **************************	
*	A-4360-205-A	POWER BOARD, COMPLETE (Germany) ******************************	
*	A-4360-215-A	POWER BOARD, COMPLETE (UK) *************************	
*	A-4360-221-A	POWER BOARD, COMPLETE (IT) *************************	
		< CAPACITOR >	
C901	1-124-556-11	ELECT 2200uF 20% 16V	
C903	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C904	1-124-442-00	ELECT 330uF 20% 6.3V	
C905	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C906	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C910	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C911	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C951	1-124-556-11	ELECT 2200uF 20% 16V	
C954	1-124-442-00	ELECT 330uF 20% 6.3V	
C955	1-124-360-00	ELECT 1000uF 20% 16V	
C957	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C959	1-124-994-11	ELECT 100uF 20% 10V	
C962	1-124-910-11	ELECT 47uF 20% 50V	
C963	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C964	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C965	1-126-059-11	ELECT 10uF 20% 50V	
		< CONNECTOR >	
* CN902	1-568-828-11	SOCKET, CONNECTOR 9P	
		< DIODE >	
D901	8-719-210-33	DIODE EC10DS2	
D902	8-719-210-33	DIODE EC10DS2	
D903	8-719-210-33	DIODE EC10DS2	
D904	8-719-210-33	DIODE EC10DS2	
D905	8-719-210-33	DIODE EC10DS2	
D906	8-719-210-33	DIODE EC10DS2	
D909	8-719-210-33	DIODE EC10DS2	
D912	8-719-014-56	DIODE UZP-5.1B	
D913	8-719-022-76	DIODE UZM30B	

< FUSE HOLDER >

Ref.No.	Part No.	Description	Remark
* FH903	1-533-213-11	HOLDER, FUSE	
* FH904	1-533-213-11	HOLDER, FUSE	
* FH905	1-533-213-11	HOLDER, FUSE	
* FH913	1-533-213-31	HOLDER, FUSE	
* FH914	1-533-213-31	HOLDER, FUSE	
* FH915	1-533-213-31	HOLDER, FUSE	

< IC >

Ref.No.	Part No.	Description		Remark
IC901	8-759-602-66	IC	M5230L-A	
IC903	8-759-231-53	IC	TA7805S	

< TRANSISTOR >

Ref.No.	Part No.	Description		Remark
Q901	8-729-141-83	TRANSISTOR	2SB1094-LK	
Q902	8-729-805-41	TRANSISTOR	2SC3398	
Q903	8-729-209-15	TRANSISTOR	2SD2012	
Q905	8-729-805-65	TRANSISTOR	2SA1344	
Q951	8-729-209-15	TRANSISTOR	2SD2012	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R901	1-216-033-00	METAL CHIP	220	5%	1/10W	
R902	1-216-017-00	METAL CHIP	47	5%	1/10W	
R903	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R904	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R905	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R906	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R907	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R908	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R909	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R915	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R916	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R917	1-216-033-00	METAL CHIP	220	5%	1/10W	
R918	1-216-033-00	METAL CHIP	220	5%	1/10W	
⚠R919	1-219-124-91	FUSIBLE	0.68	5%	1/4W	F
⚠R920	1-219-124-91	FUSIBLE	0.68	5%	1/4W	F
⚠R921	1-212-865-00	FUSIBLE	22	5%	1/4W	F
R951	1-216-033-00	METAL CHIP	220	5%	1/10W	
R952	1-216-017-00	METAL CHIP	47	5%	1/10W	

****

* A-4360-202-A REVERBERATION BOARD, COMPLETE

****

< CAPACITOR >

Ref.No.	Part No.	Description			Remark
C201	1-136-173-00	FILM	0.47uF	5%	50V
C202	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C203	1-136-173-00	FILM	0.47uF	5%	50V
C204	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
C205	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C206	1-136-161-00	FILM	0.047uF	5%	50V
C207	1-136-161-00	FILM	0.047uF	5%	50V
C208	1-136-161-00	FILM	0.047uF	5%	50V
C209	1-136-171-00	FILM	0.33uF	5%	50V
C210	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C211	1-136-165-00	FILM	0.1uF	5%	50V
C212	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C213	1-136-176-00	FILM	0.082uF	5%	50V
C214	1-136-173-00	FILM	0.47uF	5%	50V
C215	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C216	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C217	1-124-443-00	ELECT	100uF	20%	10V
C218	1-126-022-11	ELECT	47uF	20%	10V
C219	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C220	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C221	1-124-443-00	ELECT	100uF	20%	10V
C222	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C223	1-136-171-00	FILM	0.33uF	5%	50V
C224	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C225	1-136-171-00	FILM	0.33uF	5%	50V
C226	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C230	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C231	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
C232	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C233	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C234	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C235	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C236	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C237	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C239	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C240	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C242	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C245	1-136-173-00	FILM	0.47uF	5%	50V
C246	1-136-173-00	FILM	0.47uF	5%	50V
C247	1-136-173-00	FILM	0.47uF	5%	50V
C260	1-124-443-00	ELECT	100uF	20%	10V
C261	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C262	1-124-443-00	ELECT	100uF	20%	10V
C263	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C264	1-124-443-00	ELECT	100uF	20%	10V
C265	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C266	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C267	1-164-232-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN106	1-573-109-11	PIN, CONNECTOR 15P	

< IC >

Ref.No.	Part No.	Description		Remark
IC201	8-759-166-77	IC	M50194AP	
IC202	8-759-009-06	IC	MC14052BF	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

REVERBERATION

Ref. No.	Part No.	Description	Remark
IC203	8-759-636-55	IC M5218AFP	
IC204	8-759-636-55	IC M5218AFP	
IC205	8-759-636-55	IC M5218AFP	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R201	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R202	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R203	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R204	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R205	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R206	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R207	1-216-070-00	METAL CHIP 7.5K 5% 1/10W	
R208	1-216-094-00	METAL GLAZE 75K 5% 1/10W	
R209	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R210	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R211	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R212	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R213	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R214	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R215	1-216-070-00	METAL CHIP 7.5K 5% 1/10W	
R216	1-216-094-00	METAL GLAZE 75K 5% 1/10W	
R217	1-216-070-00	METAL CHIP 7.5K 5% 1/10W	
R218	1-216-094-00	METAL GLAZE 75K 5% 1/10W	
R220	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R221	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R222	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R223	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R224	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R225	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R226	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R227	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R228	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R229	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R230	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R231	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R232	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R233	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R234	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R235	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R236	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R237	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R238	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R239	1-216-047-00	METAL CHIP 820 5% 1/10W	
R245	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R246	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R247	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R248	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R249	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R253	1-216-295-00	METAL CHIP 0 5% 1/10W	
R255	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R260	1-216-109-00	METAL CHIP 330K 5% 1/10W	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X201	1-567-143-00	OSCILLATOR, CERAMIC (6.00MHz)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
3	1-690-094-11	WIRE, FLAT TYPE (15 CORE)	
4	1-590-241-11	WIRE, FLAT TYPE (9 CORE)	
5	1-590-036-31	WIRE, FLAT TYPE (13 CORE)	
23	1-751-216-31	LEAD (WITH CONNECTOR) (2 CORE)	
⚠CN909	1-526-751-00	OUTLET, AC (UK)	
⚠CN909	1-526-794-11	OUTLET, AC (AEP/G/IT)	
⚠F903	1-532-203-00	FUSE, TIME-LAG (2.0A)	
⚠F904	1-532-203-00	FUSE, TIME-LAG (2.0A)	
⚠F905	1-532-203-00	FUSE, TIME-LAG (2.0A)	
FL701	1-519-649-11	INDICATOR TUBE, FLUORESCENT	
⚠T901	1-423-330-11	TRANSFORMER, POWER (AEP)	
⚠	1-423-560-11	TRANSFORMER, POWER (UK)	

****

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-682-547-09	SCREW +BVTT 3X6 (S)	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-621-849-00	SCREW, TAPPING	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-957-628-11

Sony Corporation
Audio Group

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SEQ-H4800

SERVICE MANUAL

AEP Model

- **SEQ-H4800 is the GRAPHIC EQUALIZER in MHC-4800.**

This set is almost the same as model SEQ-H3800 (AEP, UK Model) previously produced.
Therefore, see the service manual for the information which is not contained in this service manual.

SECTION 3. IC PIN FUNCTION

PAGE	SEQ-H3800				SEQ-H4800			
	No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
5	18	MODE 0	I	Pull up GND	18	MODE 0	I	Pull down GND

GRAPHIC EQUALIZER

SONY®

MICROFILM

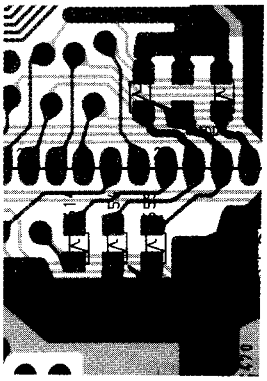
SECTION 4. DIAGRAMS

- ○— : indicated a lead wire mounted on the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

4-2. PRINTED WIRING BOARDS

- **MAIN SECTION**

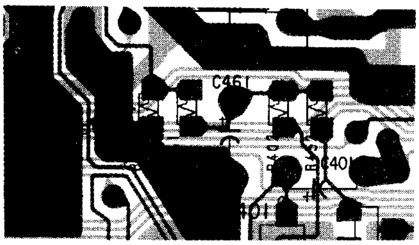
Page 11
[MAIN BOARD]



R653
Location
H-4

R656
Location
H-4

Page 12
[MAIN BOARD]

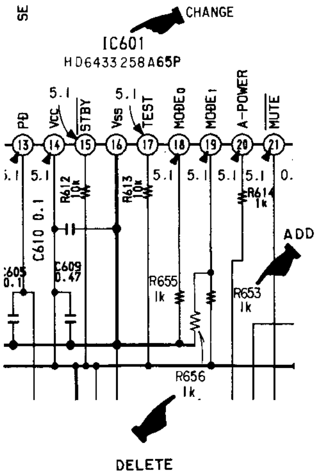


R460
Location
H-8

4-3. SCHEMATIC DIAGRAMS

- **MAIN SECTION**

Page 18
[MAIN BOARD]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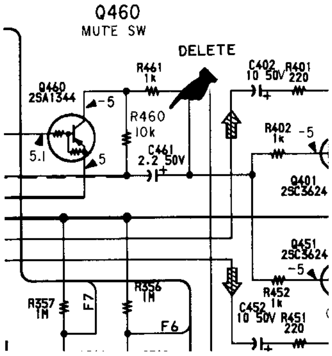
IC601
HD6433258A65P
PFD
VCC
STBY
Vss
TEST
MODE0
MODE1
A-POWER
MUTE
R612 10k
R613 10k
R614 1k
C610 0.1
C609 0.47
R655 1k
R653 1k
R656 1k
ADD
DELETE

IC601
Location
D-18

Page 19
[MAIN BOARD]

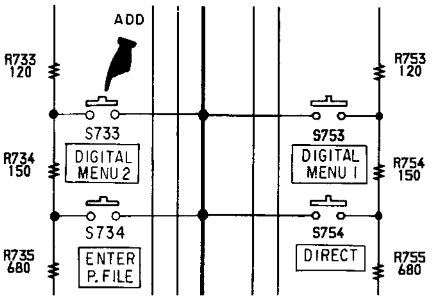

Q460
MUTE SW
DELETE
Q460 2SA1344
R461 1k
R460 10k
C461 2.2 50V
C402 10 50V
R401 220
R402 1k
Q401 2SC3624
Q451 2SC3624
R452 1k
C452 10 50V
R451 220
R357 1M
R356 1M
F7
F6

R460
Location
L-25

4-4. SCHEMATIC DIAGRAMS

- **PANEL, POWER SECTION**

Page 21
[PANEL BOARD]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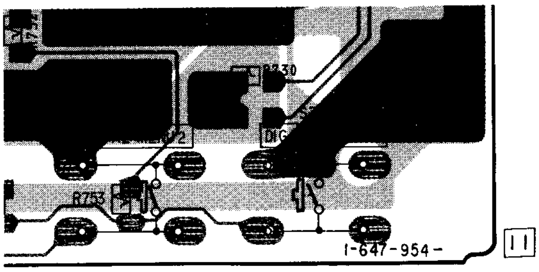
R733 120
R734 150
R735 680
S733
DIGITAL MENU 2
S734
ENTER P.FILE
S753
DIGITAL MENU 1
S754
DIRECT
R753 120
R754 150
R755 680

S733
Location
H-5

4-5. PRINTED WIRING BOARDS

- **PANEL, POWER SECTION**

Page 27
[PANEL BOARD]


R730
R753
1-647-954-
11

S733
Location
D-14

SECTION 5 EXPLODED VIEWS

5-1. MAIN SECTION

NOTE :

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

IT: Italian Model

PAGE	SEQ-H3800			SEQ-H4800		
	Ref. No	Part No.	Description	Ref. No	Part No.	Description
33	1	X-4943-455-1	PANEL ASSY, FRONT	1	X-4943-453-1	PANEL ASSY, FRONT
	4	1-590-241-11	WIRE, FLAT TYPE (9 CORE)	4	1-690-588-31	WIRE, FLAT TYPE (9 CORE)
	* 7	4-957-203-11	PANEL, BACK (AEP)	* 7	4-957-197-11	PANEL, BACK (AEP)
	*	4-957-203-22	PANEL, BACK (Germany)	*	4-957-197-21	PANEL, BACK (Germany)
	*	4-957-203-41	PANEL, BACK (IT)	*	4-957-197-41	PANEL, BACK (IT)
	* 10	A-4360-197-A	MAIN BOARD, COMPLETE (AEP)	* 10	A-4360-019-A	MAIN BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-203-A	MAIN BOARD, COMPLETE (Germany)			
	*	A-4360-219-A	MAIN BOARD, COMPLETE (IT)			
	* 11	A-4360-198-A	PANEL BOARD, COMPLETE (AEP)	* 11	A-4360-020-A	PANEL BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-204-A	PANEL BOARD, COMPLETE (Germany)			
	*	A-4360-220-A	PANEL BOARD, COMPLETE (IT)			
	* 12	A-4360-199-A	POWER BOARD, COMPLETE (AEP)	* 12	A-4360-021-A	POWER BOARD, COMPLETE (AEP)
	*	A-4360-205-A	POWER BOARD, COMPLETE (Germany)	*	A-4360-149-A	POWER BOARD, COMPLETE (Germany, IT)
	*	A-4360-221-A	POWER BOARD, COMPLETE (IT)			
	* 13	A-4360-200-A	PIN JACK BOARD, COMPLETE (AEP)	* 13	A-4360-022-A	PIN JACK BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-210-A	PIN JACK BOARD, COMPLETE (Germany)			
	*	A-4360-222-A	PIN JACK BOARD, COMPLETE (IT)			

SECTION 6 ELECTRICAL PARTS LIST

PAGE	SEQ-H3800			SEQ-H4800		
	Ref. No	Part No.	Description	Ref. No	Part No.	Description
34	*	A-4360-197-A	MAIN BOARD, COMPLETE (AEP)	*	A-4360-019-A	MAIN BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-203-A	MAIN BOARD, COMPLETE (Germany)			
	*	A-4360-219-A	MAIN BOARD, COMPLETE (IT)			
35	IC601	8-759-164-67	IC HD6433258A64P	IC601	8-759-164-68	IC HD6433258A65P
36	R460	1-216-073-00	METAL CHIP 10K 5% 1/10W	R460	------------	
	R653	------------		R653	1-216-049-00	METAL CHIP 1K 5% 1/10W
	R656	1-216-049-00	METAL CHIP 1K 5% 1/10W	R656	------------	
	*	A-4360-198-A	PANEL BOARD, COMPLETE (AEP)	*	A-4360-020-A	PANEL BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-204-A	PANEL BOARD, COMPLETE (Germany)			
	*	A-4360-220-A	PANEL BOARD, COMPLETE (IT)			
37	S733	------------		S733	1-554-303-21	SWITCH, TACTILE (DIGITAL MENU 2)
	S753	1-554-303-21	SWITCH, TACTILE (DIGITAL MENU)	S753	1-554-303-21	SWITCH, TACTILE (DIGITAL MENU 1)
	*	A-4360-200-A	PIN JACK BOARD, COMPLETE (AEP)	*	A-4360-022-A	PIN JACK BOARD, COMPLETE (AEP, Germany, IT)
	*	A-4360-210-A	PIN JACK BOARD, COMPLETE (Germany)			
	*	A-4360-222-A	PIN JACK BOARD, COMPLETE (IT)			
38	*	A-4360-199-A	POWER BOARD, COMPLETE (AEP)	*	A-4360-021-A	POWER BOARD, COMPLETE (AEP)
	*	A-4360-205-A	POWER BOARD, COMPLETE (Germany)	*	A-4360-149-A	POWER BOARD, COMPLETE (Germany, IT)
	*	A-4360-221-A	POWER BOARD, COMPLETE (IT)			
	D913	8-719-022-76	DIODE UZM30B	D913	8-719-022-79	DIODE UZM33Y
39	*	A-4360-202-A	REVERBERATION BOARD, COMPLETE	*	A-4360-958-A	REVERBERATION BOARD, COMPLETE

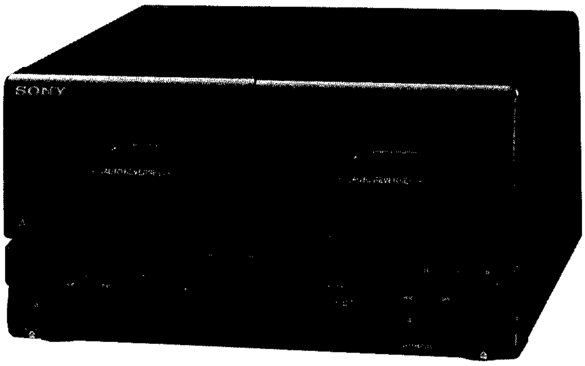
INLET board is the same as those of SEQ-H3800.

25

TC-H4800

SERVICE MANUAL

AEP Model
E Model
Australian Model
Tourist Model



This unit is cassette deck for the MHC-4800/FH-E8X component system.

Model Name Using Similar Mechanism		TC- H6800
Tape Transport Mechanism Type	DECK A	TC-190RA12A
	DECK B	TC-190RB12A

SPECIFICATIONS

Cassette Deck

Recording system	4-track 2-channel stereo
Frequency response	(DOLBY NR OFF) 40 — 13,000 Hz (±3 dB), using TYPE I cassette (Sony HF-S) 40 — 14,000 Hz (±3 dB), using TYPE II cassette (Sony UX-S) 40 — 15,000 Hz (±3 dB), using TYPE IV cassette (Sony METAL-S)
Wow and flutter	0.1% WRMS ±0.3% (DIN)

Design and specifications subject to change without notice.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

MICROFILM

STEREO CASSETTE DECK

SONY

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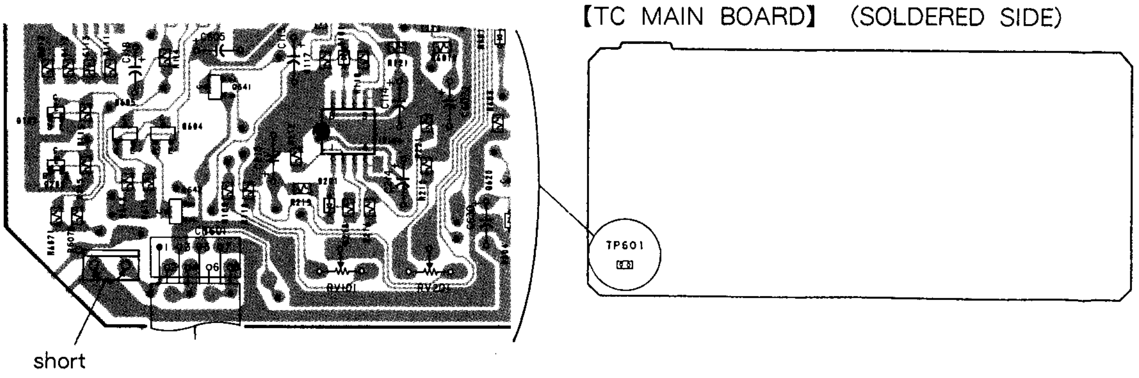
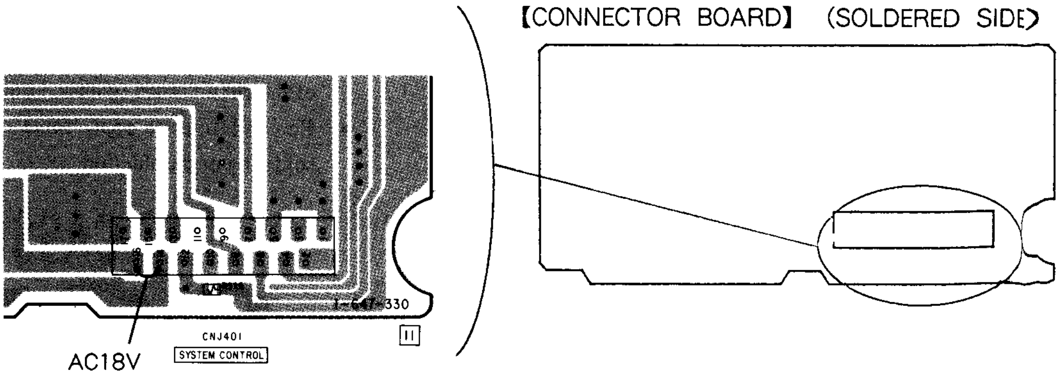
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION WHEN REPAIRING

This unit is connected to power amplifier TA-H4800, which supplies normally the power to this unit. However, when repairing this unit only, connecter board after shorting the TP601 on the main board as shown in the following diagrams :


【TC MAIN BOARD】 (SOLDERED SIDE)
TP601
CN601
RV101
RV201
short

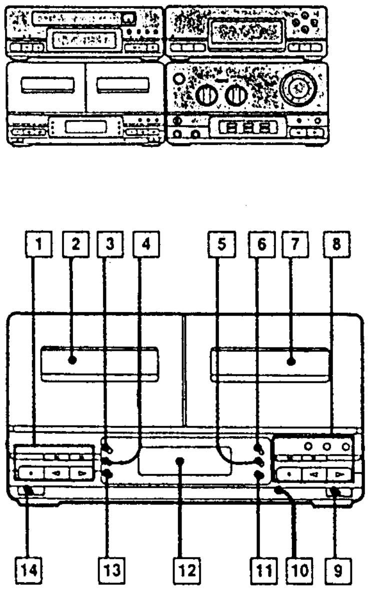

【CONNECTOR BOARD】 (SOLDERED SIDE)
1-647-330
CNJ401
SYSTEM CONTROL
11
AC18V

SECTION 1
GENERAL

This section is extracted from instruction manual.

Parts Identification

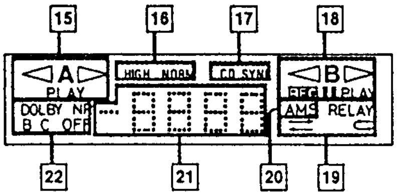
C



Cassette Deck Section C

1 Tape operation buttons (for Deck A)
  ◀◀ ▶▶AMS : Fast winding buttons
  ■ : Stop button
  ▷ : Forward play button
  ◁ : Reverse play button
2 Cassette holder (Deck A)
3 COUNTER RESET button (62)
4 COUNTER A/B selector (62)
5 DUBBING MODE button (72)
6 CD SYNCHRO (CD synchronized recording) button and indicator (80)
7 Cassette holder (Deck B)
8 Tape operation buttons (for Deck B)
  II PAUSE button
  O MUTE button
  ● REC button
  ◀◀ ▶▶AMS : Fast winding buttons
  ■ : Stop button
  ▷ : Forward play button
  ◁ : Reverse play button
9 ⏏ Eject button (Deck B)
10 AUTO REC LEVEL (Automatic Recording Level) indicator (68, 80)
11 DIRECTION MODE button (62, 66)
12 Display window
13 DOLBY NR (Dolby Noise Reduction) selection button (64)
14 ⏏ Eject button (Deck A)

D



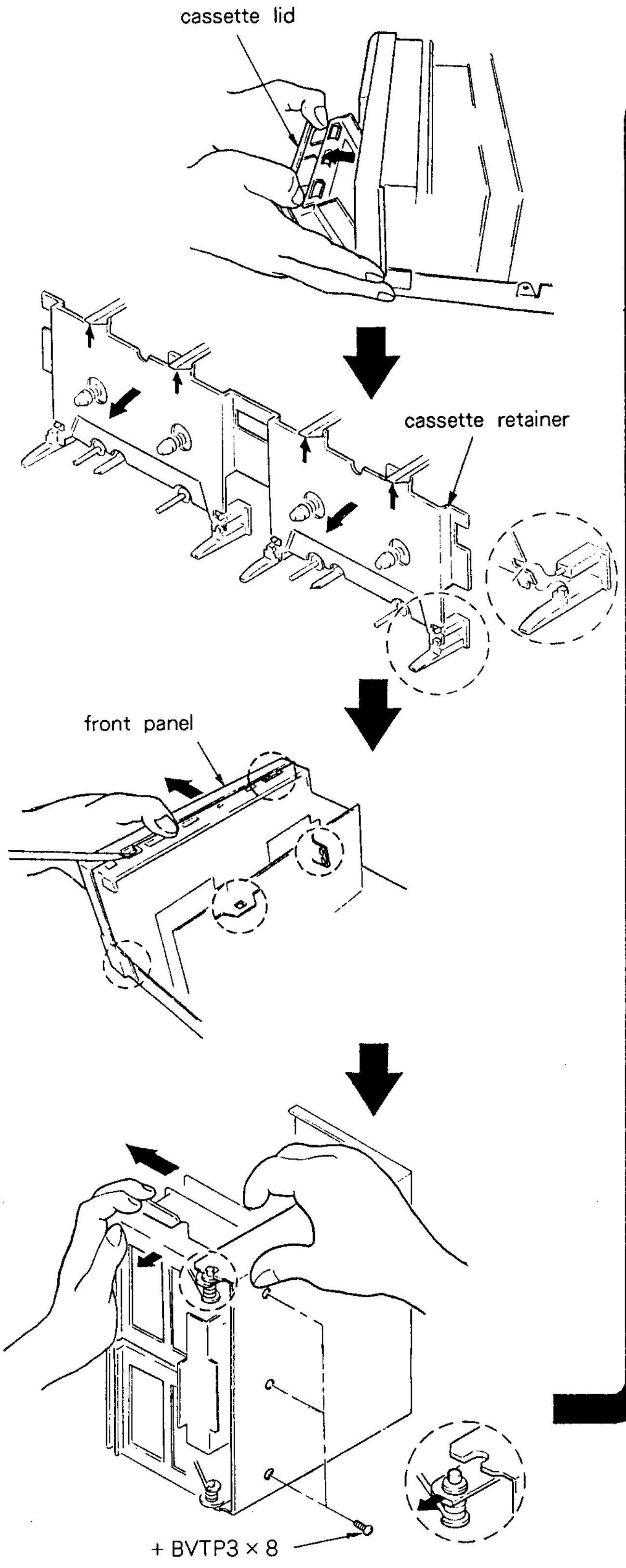
Display window D

15 Deck A status display
16 Dubbing mode display
17 CD SYNCHRO display
18 Deck B status display
19 Tape direction mode display
20 AMS display
21 Counter display
22 DOLBY NR display

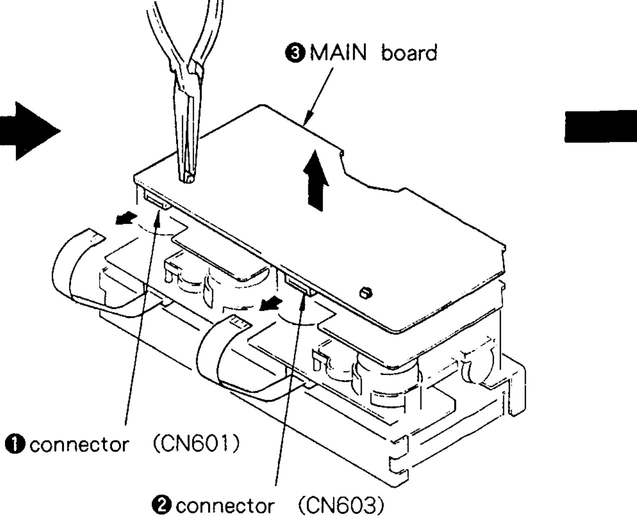
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

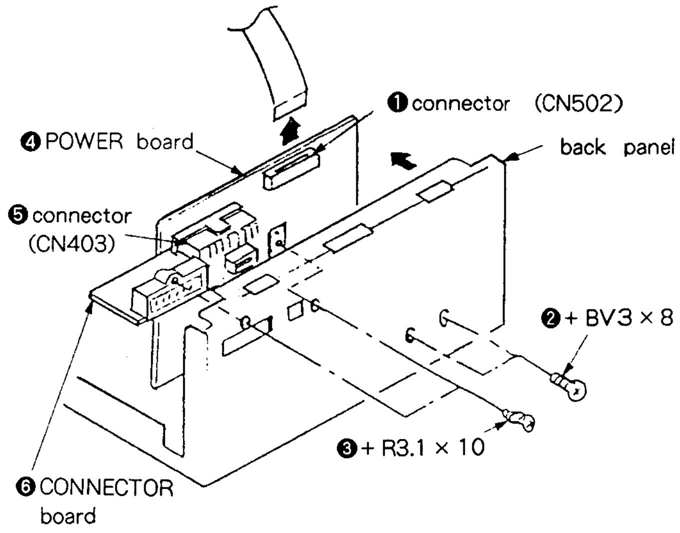
• FRONT PANEL


cassette lid
cassette retainer
front panel
+ BVTP3 × 8

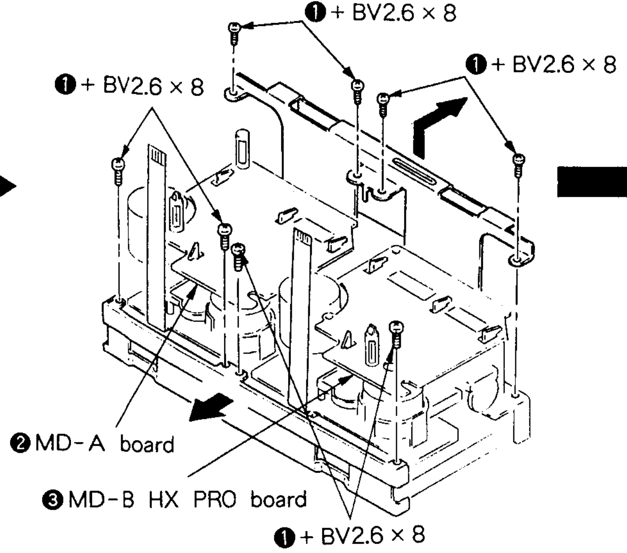
• MAIN BOARD


❸ MAIN board
❶ connector (CN601)
❷ connector (CN603)

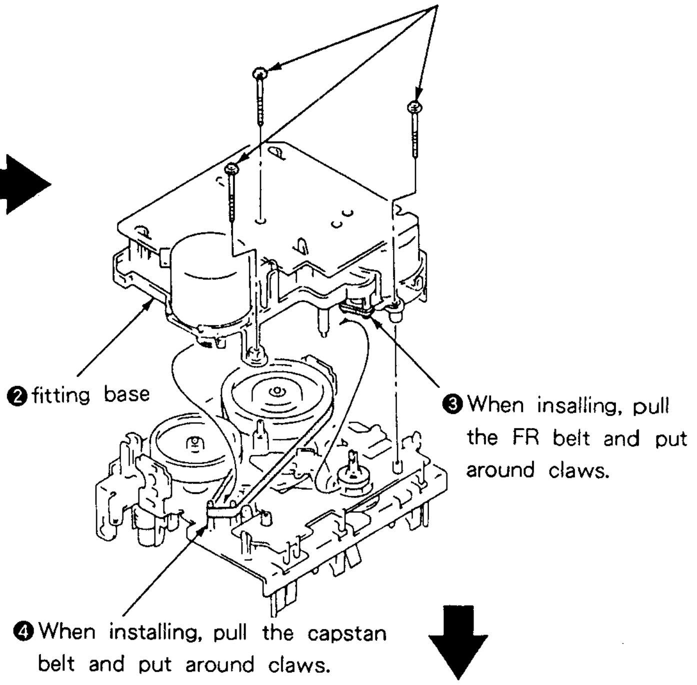
• CONNECTOR/POWER BOARD

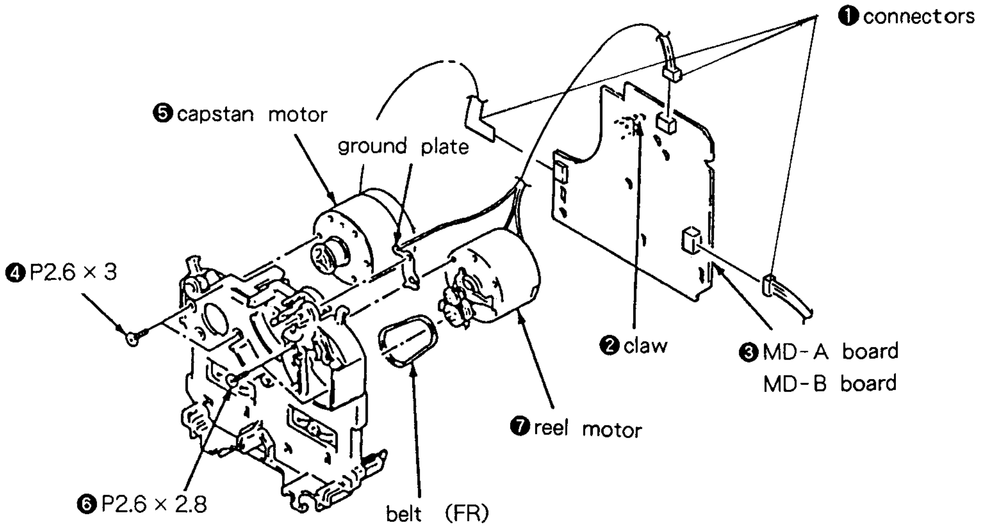

❶ connector (CN502)
❹ POWER board
back panel
❺ connector (CN403)
❷ + BV3 × 8
❸ + R3.1 × 10
❻ CONNECTOR board

- **MECHANISM DECK**

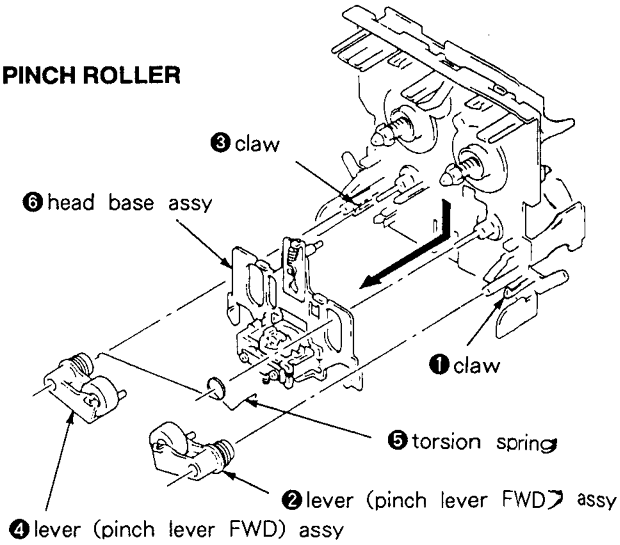

❶ + BV2.6 × 8
❶ + BV2.6 × 8
❶ + BV2.6 × 8
❷ MD-A board
❸ MD-B HX PRO board
❶ + BV2.6 × 8

- **CAPSTAN/REEL MOTOR**


❶ PHPWH2 × 23
❷ fitting base
❸ When insalling, pull the FR belt and put around claws.
❹ When installing, pull the capstan belt and put around claws.


❶ connectors
❺ capstan motor
ground plate
❹ P2.6 × 3
❷ claw
❸ MD-A board
MD-B board
❼ reel motor
❻ P2.6 × 2.8
belt (FR)

- **HARD, PINCH ROLLER**


❸ claw
❻ head base assy
❶ claw
❺ torsion spring
❷ lever (pinch lever FWD) assy
❹ lever (pinch lever FWD) assy

SECTION 3
MECHANICAL ADLUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

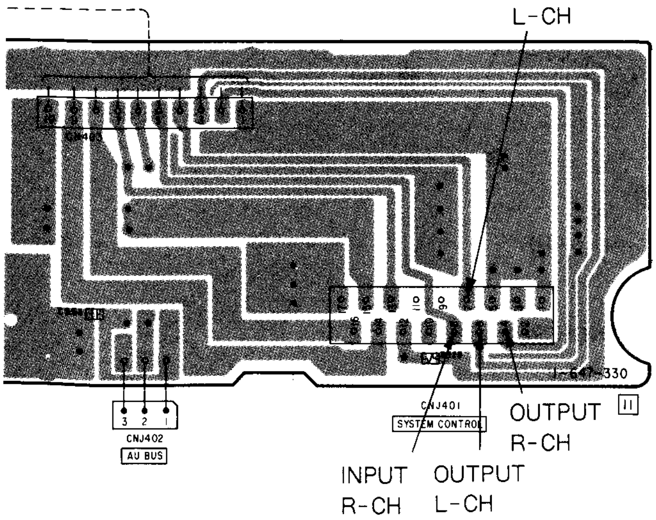
2. Demagnetize the record/playback head with a head demagnetizer.
   (Head demagnetizer do not approach for the erase head.)
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be perfomed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 to 65g・cm (0.42 to 0.90 oz・inch)
Forward back tension	CQ-102C	1 to 6g・cm (0.014 to 0.08 oz・inch)
Reverse	CQ-102RC	30 to 65g・cm (0.42 to 0.90 oz・inch)
Reverse back tension	CQ-102RC	1 to 6g・cm 0.014 to 0.08 oz・inch)
Forward, Reverse	CQ-201B	70 to 120g・CM (0.98 to 1.67 oz・inch)

LINE IN/OUT Terminal (CNJ401)

【CONNECTOR BOARD】


INPUT
L-CH
CNJ401
1-647-330
OUTPUT
R-CH
CNJ401
SYSTEM CONTROL
CNJ402
AU BUS
3 2 1
INPUT
R-CH
OUTPUT
L-CH

SECTION 4
ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
   - Switch position
     DOLBY NR switch : OFF

Test Tape

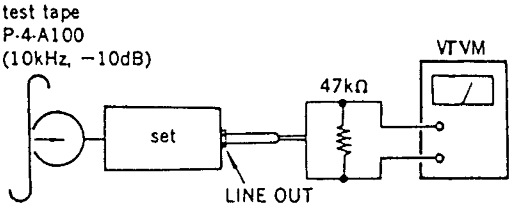
Tape	Contents	Use
P-4-A100	10kHz, −10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment

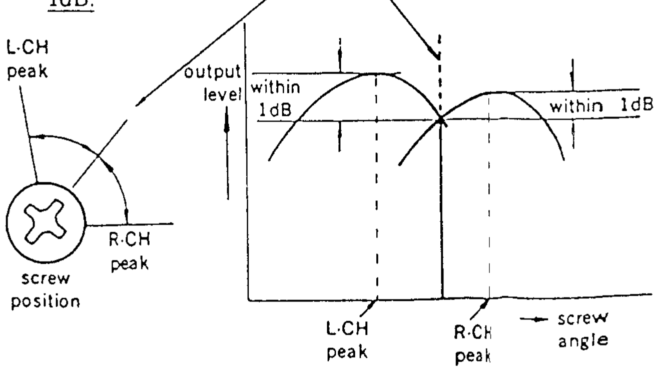
DECK A DECK B

Procedure:

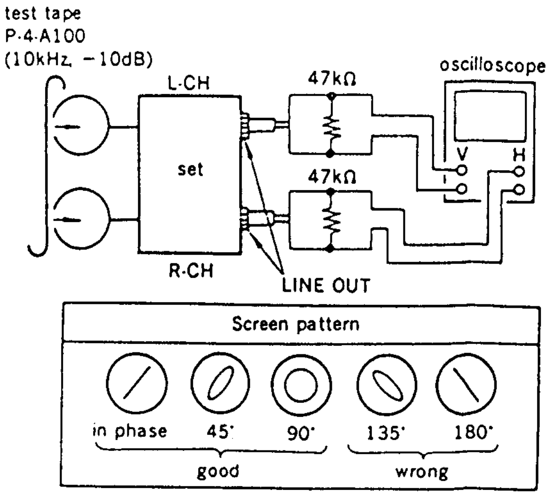
1. Forward Playback Mode


test tape
P-4-A100
(10kHz, −10dB)
VTVM
47kΩ
set
LINE OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do notmatch, turn the adjustment screw until both of output levels match together within 1dB.


L-CH
peak
output
level
within
1dB
within 1dB
R-CH
peak
screw
position
L-CH
peak
R-CH
peak
screw
angle

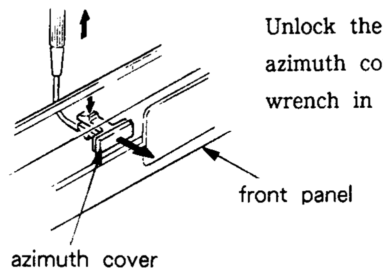
3. Playback Mode

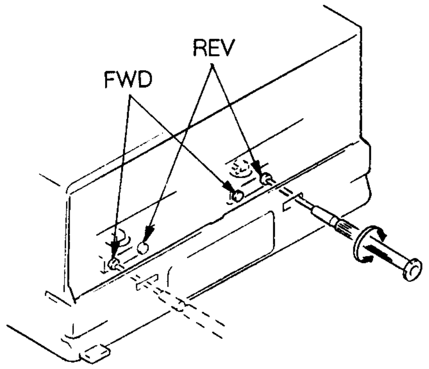

test tape
P-4-A100
(10kHz, −10dB)
L-CH
set
R-CH
47kΩ
47kΩ
oscilloscope
V
H
LINE OUT
Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. Change the reverse playback mode and repeat the steps 1 to 3.
5. After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location : − record/playback head −

- Removing the azimutha cover. Unlock the stoppers of the azimuth cover using a L-shaped wrench in order to adjust.

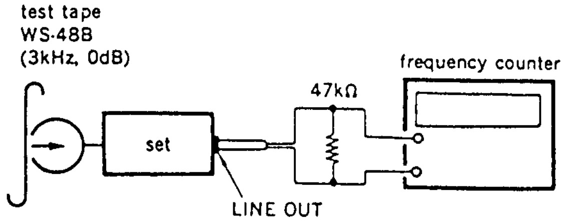

front panel
azimuth cover



Tape Speed Adjustment DECK A DECK B

Procedure :

—Forward Playback Mode—


test tape
WS-48B
(3kHz, 0dB)
set
47kΩ
frequency counter
LINE OUT

Perform high speed adjustment before normal speed adjustment.

(High speed adjustment)

1. Short TP601 (main board) when the power is OFF.
2. Turn on the power and put the deck A into the FWD mode.
3. Adjust RV72A (H) of the deck A so that a reading of the frequency counter meets the adjustment value.
4. Put the deck iA nto the STOP mode and remove the resister of 150 Ω
5. Adjust the deck B performing items 2 through 5 as deck A.
6. After the adjustment is completed, remove the short of TP601.

(Normal speed adjustment)

1. Put the set into the FWD playback mode.
2. At this time, adjust RV71A (L) of the deck A and RV71B (L) of the deck B so that a reading of the frequency counter meets the adjustment value.

Adjustment Limits :

Speed	Frequency Counter Reading
High	6,000 ± 30Hz
Normal	3,000 ± 15Hz

Frequency difference between the biginning and the end of the tape should be within 3%.

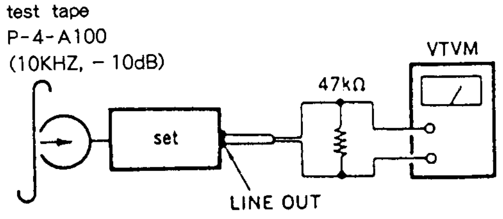
Frequency difference between deck A and deck B the beginning of the tape should be within 1.0%.

Adjustment Location : MD-A and B board

Playback Level Adjustment DECK A DECK B

Procedure :

—Forward Playback Mode—


test tape
P-4-A100
(10KHZ, − 10dB)
set
47kΩ
VTVM
LINE OUT

Adjust deck A : RV11A (L-CH), RV21A R-CH) and deck B : RV11B (L-CH), RV21B (R-CH) so that the VTVM reading becomes the adjustment limits below.

Adjustment Limits :

LINE OUT level : − 7.5 ± 0.5dB (0.31 to 0.34V)

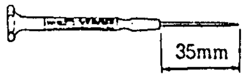
Level Difference between Channels : within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

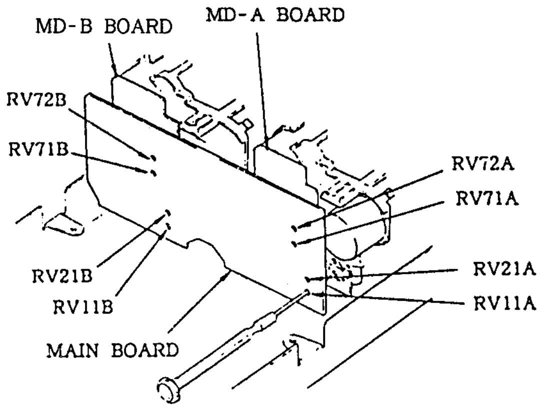
Adjustment Location : MD-A and B board

Tape Speed/playback Level Adjustment

Screwdriver to adjust the MD block



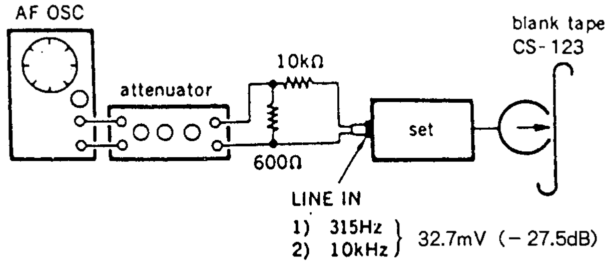
The MD block adjustment can be performed by inserting a screwdriver of which axis length (not including the shaft) is 35 mm or more through the rear side of the main board.


MD-B BOARD
MD-A BOARD
RV72B
RV71B
RV72A
RV71A
RV21A
RV11A
RV21B
RV11B
MAIN BOARD

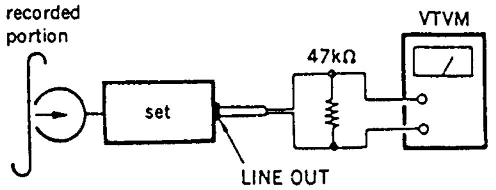
Record Bias Adjustment DECK B

Procedure :

1. Record Mode


AF OSC
attenuator
10kΩ
600Ω
set
blank tape
CS-123
LINE IN
1) 315Hz
2) 10kHz
32.7mV (− 27.5dB)

2. Playback Mode


recorded
portion
set
47kΩ
VTVM
LINE OUT

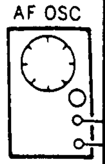
Playback the signal recorded in step 1.
Confirm that the 10kHz playback output is 0 ± 0.5dB relative to the 315Hz output. If necessary, adjust RV12 (L-CH), RV22 (R-CH) and repeat the steps given above.

Adjustment Location : MD-B board

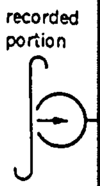
Record Lev

Procedure :

1. Record



2. Playbac

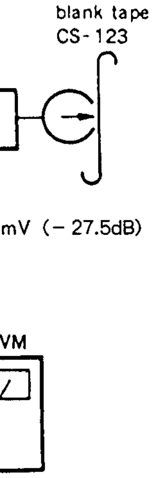

recorded
portion

Confirm pl
as follows.
If necessar
repeat step

Adjustmen

LINE OUT

Adjustmen

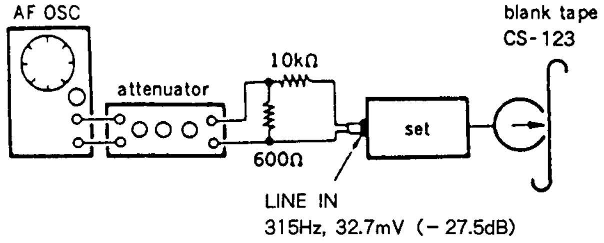

blank tape
CS-123
mV (−27.5dB)
VM

is 0 ± 0.5dB
ljust RV12 (L
ven above.

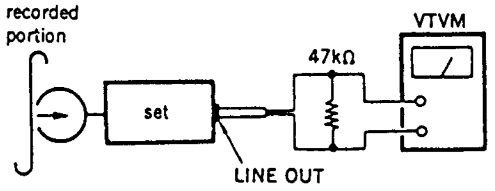
Record Level Adjustment DECK B

Procedure :

1. Record Mode


AF OSC
attenuator
10kΩ
600Ω
set
blank tape
CS-123
LINE IN
315Hz, 32.7mV (−27.5dB)

2. Playback Mode


recorded
portion
set
47kΩ
VTVM
LINE OUT

Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat steps 1 and 2.

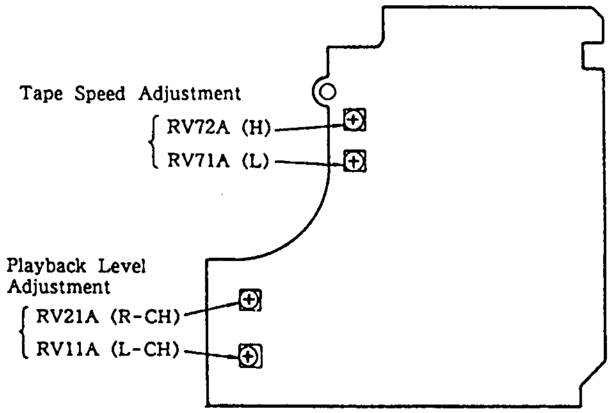
Adjustment Limits :

LINE OUT level : −27.5 ± 0.5dB (31 to 35mV)

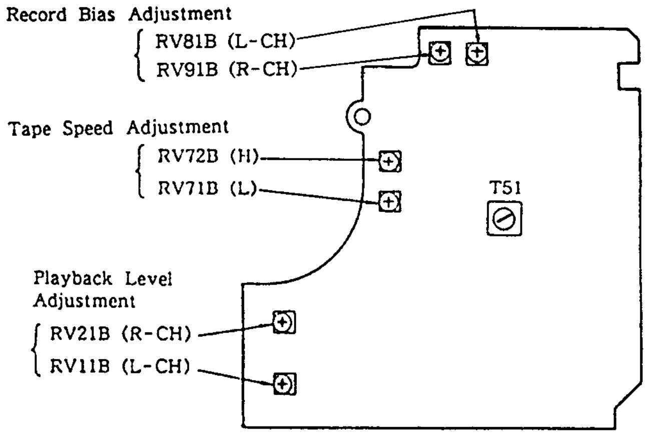
Adjustment Location : main board

ADJUSTMENT LOCATION :

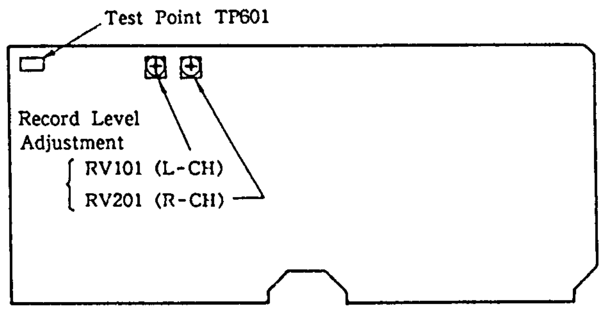
【MD-A BOARD】 component side


Tape Speed Adjustment
RV72A (H)
RV71A (L)
Playback Level
Adjustment
RV21A (R-CH)
RV11A (L-CH)

【MD-B BOARD】 component side


Record Bias Adjustment
RV81B (L-CH)
RV91B (R-CH)
Tape Speed Adjustment
RV72B (H)
RV71B (L)
T51
Playback Level
Adjustment
RV21B (R-CH)
RV11B (L-CH)

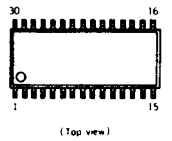
【MAIN BOARD】 component side


Test Point TP601
Record Level
Adjustment
RV101 (L-CH)
RV201 (R-CH)

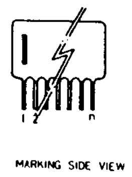
SECTION 5
DIAGRAMS

5-1. SEMICONDUCTOR READ LAYOUTS

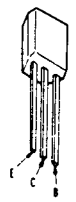
CXA1331M


30
16
1
15
(Top view)

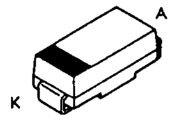
M5207L05


1
2
n
MARKING SIDE VIEW

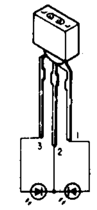
2SA1344



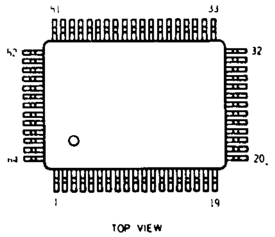
EC10DS2



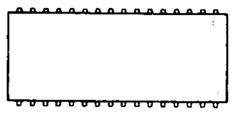
SML1260S-TP4



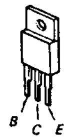
HD-614023-FA93


32
1
19
20
TOP VIEW

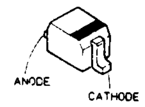
M5218AFP



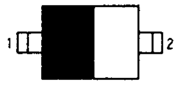
2SA473
2SD2012



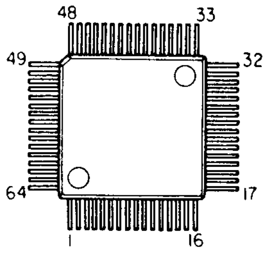
MA8056
MA8062-TX
MA8091
02DZ20-TPHR3
1SS352


ANODE
CATHODE

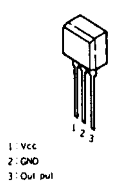
02DZ2.0-TPH3



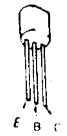
M38022M4-072FP


48
33
49
32
64
17
1
16

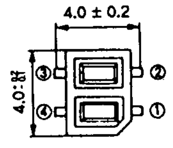
PST572E


1
2
3
1 : Vcc
2 : GND
3 : Out put

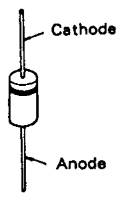
2SB1116



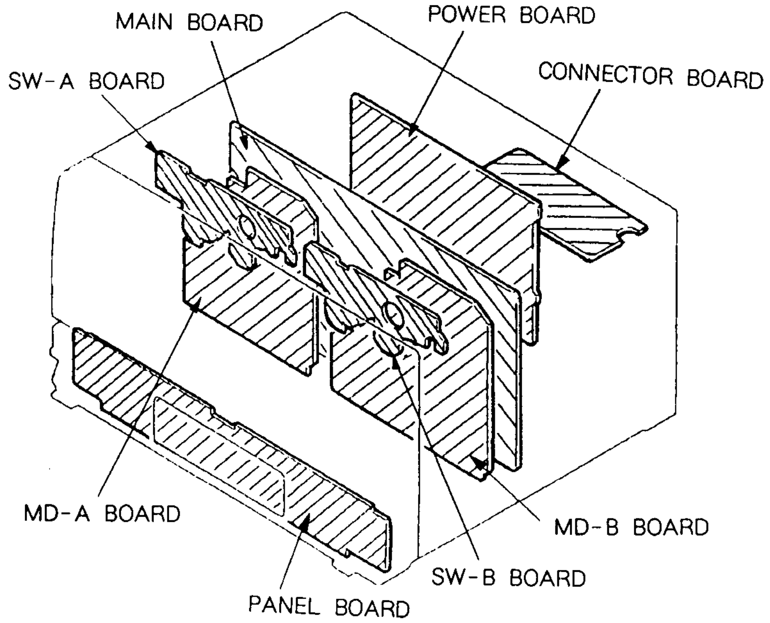
NJL5165K-B


4.0 ± 0.2
4.0±0.2
③
④
②
①

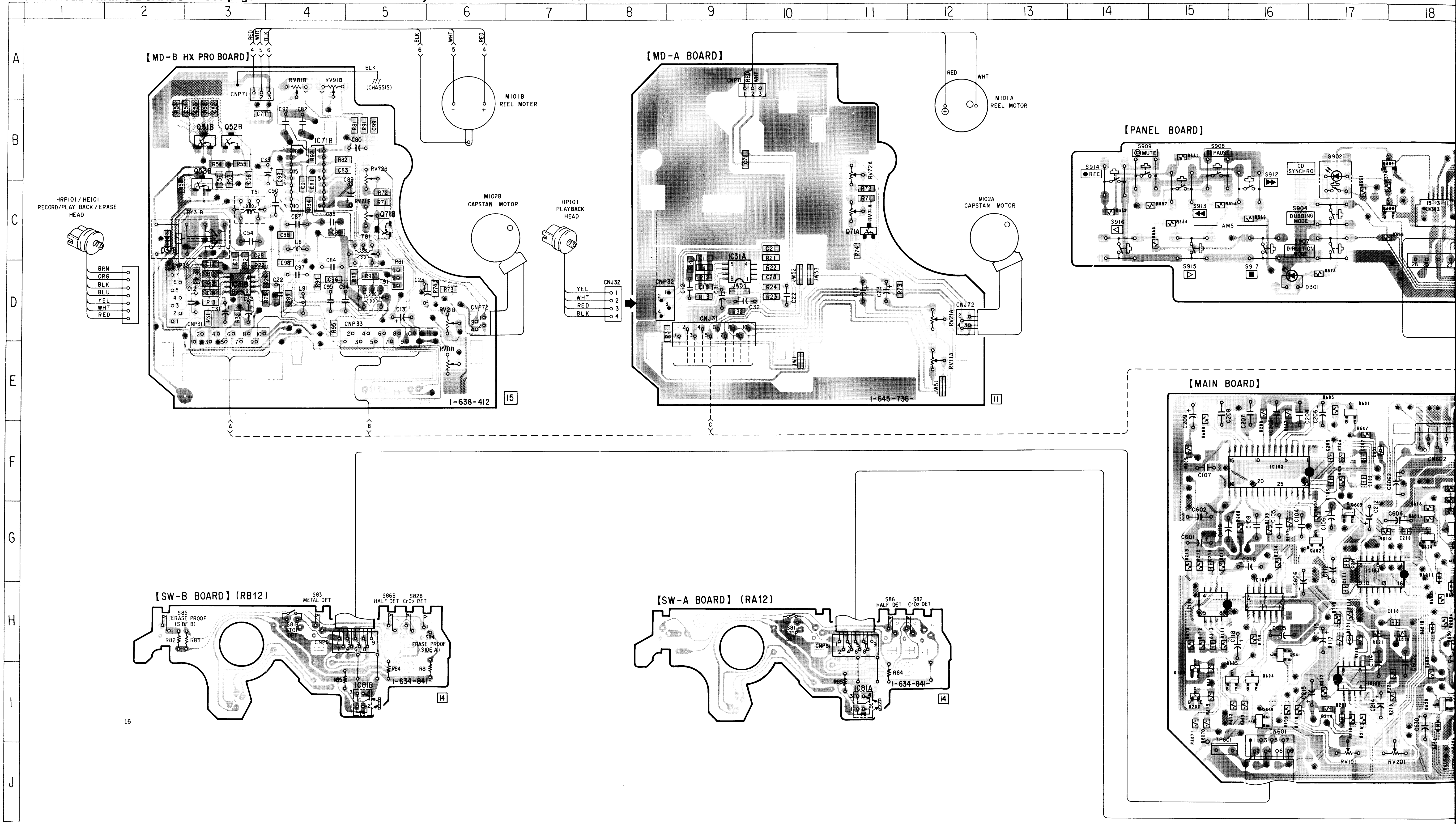
10E2


Cathode
Anode

5-2. CIRCUIT BOARDS LOCATION


MAIN BOARD
POWER BOARD
SW-A BOARD
CONNECTOR BOARD
MD-A BOARD
MD-B BOARD
SW-B BOARD
PANEL BOARD

5-3. PRINTED WIRING BOARDS • See page 10 for Semiconductor Lead Layouts and Circuit Boards Location.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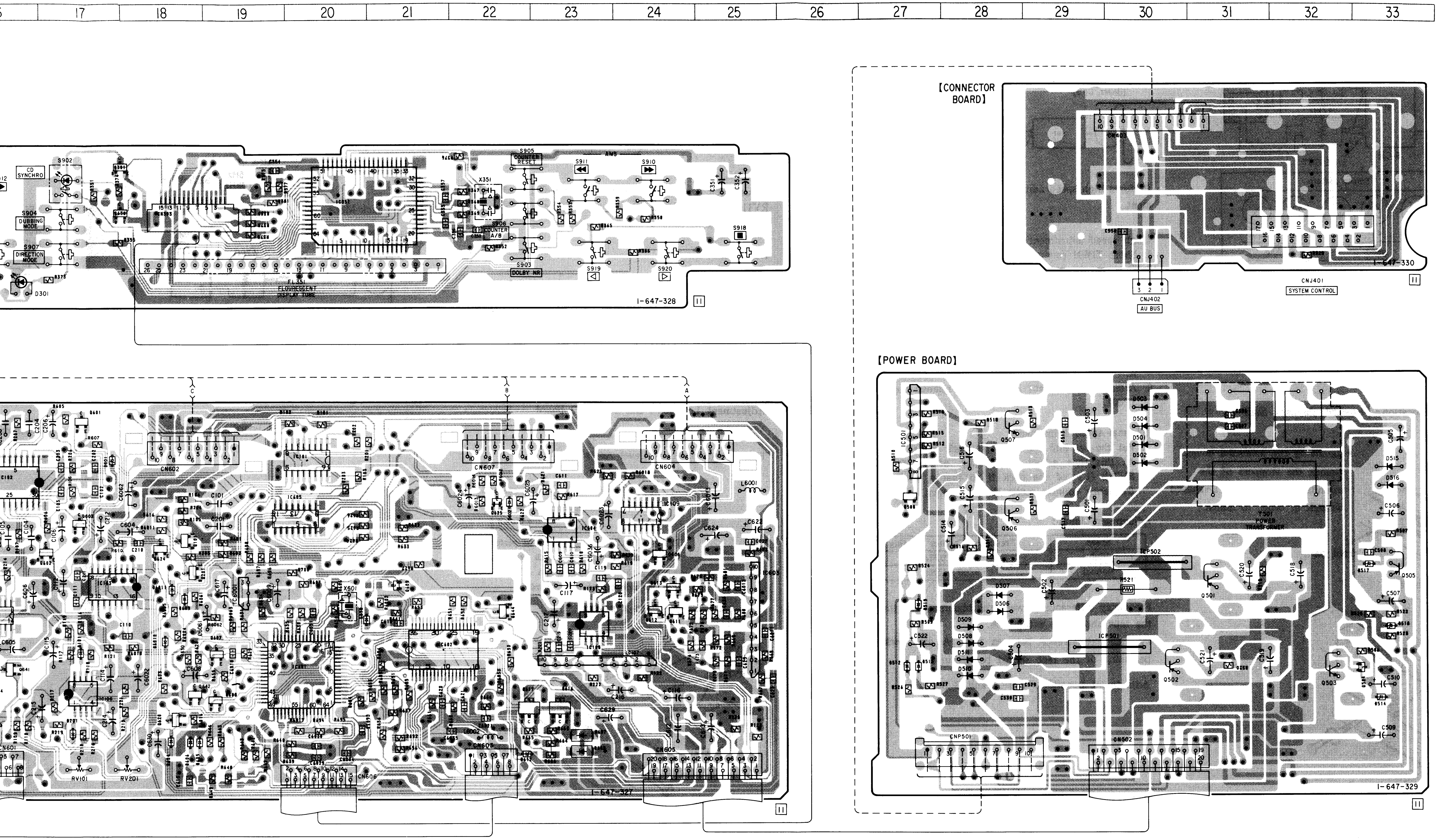
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
[MD-B HX PRO BOARD]
CNP71
BLK
(CHASSIS)
RV81B
RV91B
Q51B
Q52B
Q53B
IC71B
IC31B
T51
T81
T91
LB1
L91
Q71B
RV71B
RV72B
RV31B
RV21B
RV11B
CNP31
CNP33
CNP72
1-638-412
15
M101B
REEL MOTER
M102B
CAPSTAN MOTOR
HRP101 / HE101
RECORD/PLAY BACK / ERASE
HEAD
BRN
ORG
BLK
BLU
YEL
WHT
RED
HP101
PLAYBACK
HEAD
CNJ32
[MD-A BOARD]
CNP71
IC31A
Q71A
RV72A
RV71A
RV21A
RV11A
CNP32
CNJ31
CNJ72
JW52
JW53
JW51
JW1
1-645-736-
11
M101A
REEL MOTOR
M102A
CAPSTAN MOTOR
[PANEL BOARD]
S914 ●REC
S909 MUTE
S908 PAUSE
S912
CD SYNCHRO
S902
S913
S904 DUBBING MODE
S907 DIRECTION MODE
S916
S915
S917
D301
AMS
[MAIN BOARD]
IC102
CN602
CN601
TP601
RV101
RV201
[SW-B BOARD] (RB12)
S85 ERASE PROOF (SIDE B)
S83 METAL DET
S81B STOP DET
S86B HALF DET
S82B CrO2 DET
S84 ERASE PROOF (SIDE A)
CNP81
IC81B
1-634-841-
14
[SW-A BOARD] (RA12)
S81 STOP DET
S86 HALF DET
S82 CrO2 DET
CNP81
IC81A
1-634-841-
14
16


17
18
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21
22
23
24
25
26
27
28
29
30
31
32
33
CD SYNCHRO
S902
S904
DUBBING MODE
S907
DIRECTION MODE
D301
S905
COUNTER RESET
S911
S910
AMS
X351
IC351
S906
COUNTER A/B
S903
DOLBY NR
S918
S919
S920
C351
C352
FL351
FLOURESCENT DISPLAY TUBE
1-647-328
CN602
CN607
CN604
IC101
IC601
IC605
IC603
IC604
IC109
IC103
IC104
IC602
L6001
L6002
X601
RV101
RV201
CN601
CN606
CN609
CN605
1-647-327
[CONNECTOR BOARD]
CN402
CNJ402
AU BUS
CNJ401
SYSTEM CONTROL
1-647-330
[POWER BOARD]
IC501
ICP502
ICP501
R521
Q501
Q502
Q503
Q505
Q506
Q507
D501
D502
D503
D504
D506
D507
D508
D509
D510
D515
D516
C501
C502
C503
C505
C506
C507
C509
C510
C514
C515
C516
C518
C519
C520
C521
C522
T501
POWER TRANSFORMER
CNP501
CN502
1-647-329
11

5-4. SCHEMATIC DIAGRAM — Main Section — • See page 25 for IC Block Diagram.

• Semiconductor Location

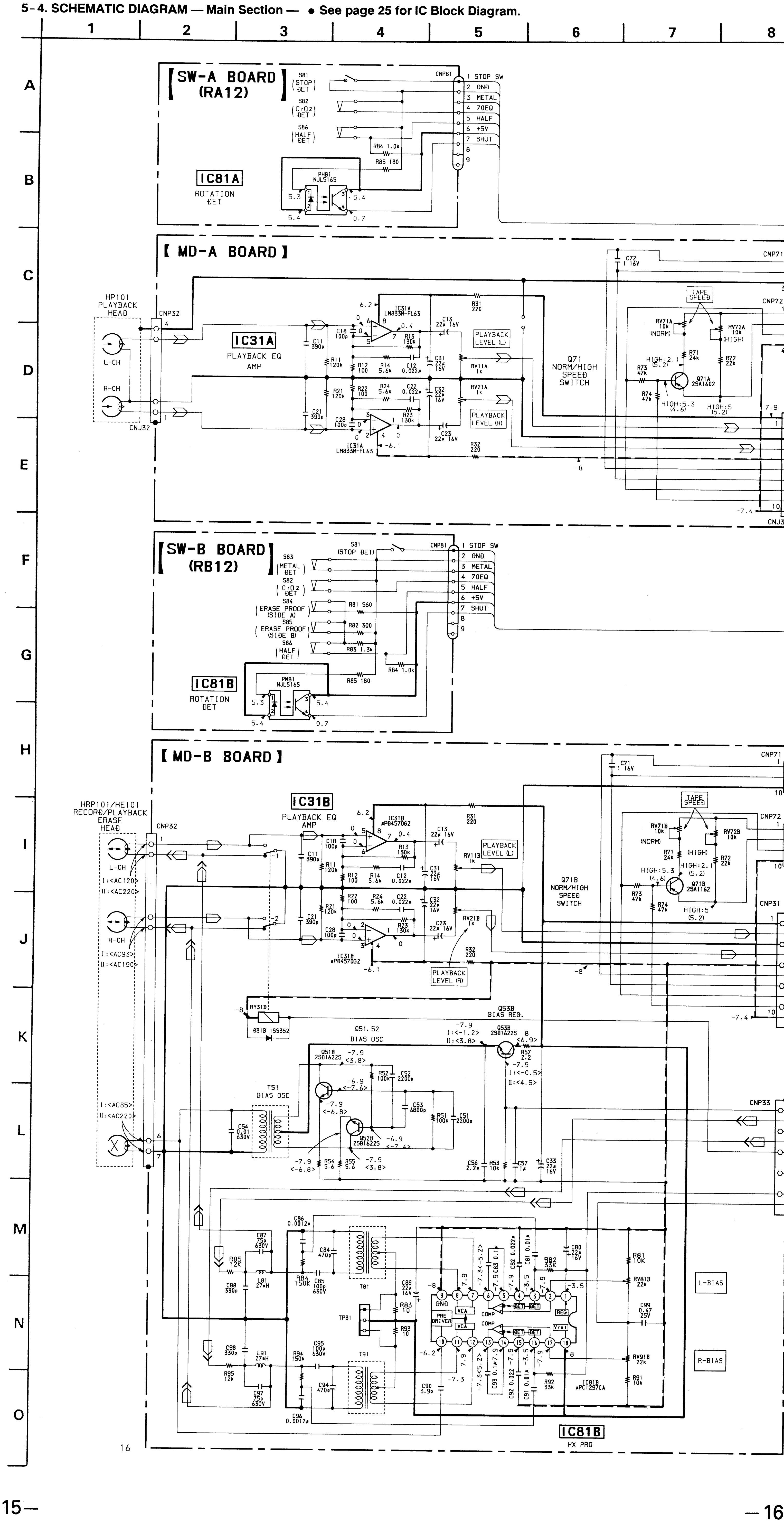
Ref. No.	Location	Ref. No.	Location
D31B	C-2	IC351	C-20
D101	H-17	IC501	F-27
D201	I-17	IC601	H-20
D301	D-16	IC602	H-21
D501	F-30	IC603	G-25
D502	F-30	IC604	G-23
D503	E-30	IC605	F-20
D504	E-30	IC6001	G-19
D506	H-28		
D507	G-28	Q51B	B-3
D508	H-28	Q52B	B-3
D509	H-28	Q53B	B-3
D510	H-28	Q71A	C-11
D511	H-28	Q71B	C-5
D512	H-27	Q101	G-18
D513	H-27	Q102	I-15
D514	I-33	Q201	G-18
D515	F-33	Q202	I-15
D516	F-33	Q301	B-17
D517	G-32	Q501	H-31
D518	H-33	Q502	I-30
D519	H-27	Q503	I-32
D601	F-17	Q504	I-32
D602	G-22	Q505	G-33
D603	H-20	Q506	G-28
D604	I-18	Q507	F-28
D605	I-18	Q508	F-27
D606	I-18	Q601	E-17
D607	I-23	Q602	G-16
D608	I-23	Q603	G-17
D609	H-18	Q604	I-16
D612	J-22	Q605	H-15
D6010	H-18	Q606	G-24
D6011	G-18	Q607	H-19
		Q608	I-19
IC31A	C-9	Q609	G-21
IC31B	D-3	Q611	H-24
IC71B	B-4	Q612	H-24
IC81A	I-11	Q613	G-24
IC81B	I-5	Q616	I-23
IC101	F-20	Q617	I-22
IC102	F-16	Q620	I-18
IC103	G-17	Q624	G-18
IC104	H-15	Q625	G-22
IC105	G-16	Q638	C-17
IC106	I-17	Q641	H-16
IC107	H-24	Q642	I-18
IC108	H-23	Q643	I-16
IC109	F-24	Q644	H-22

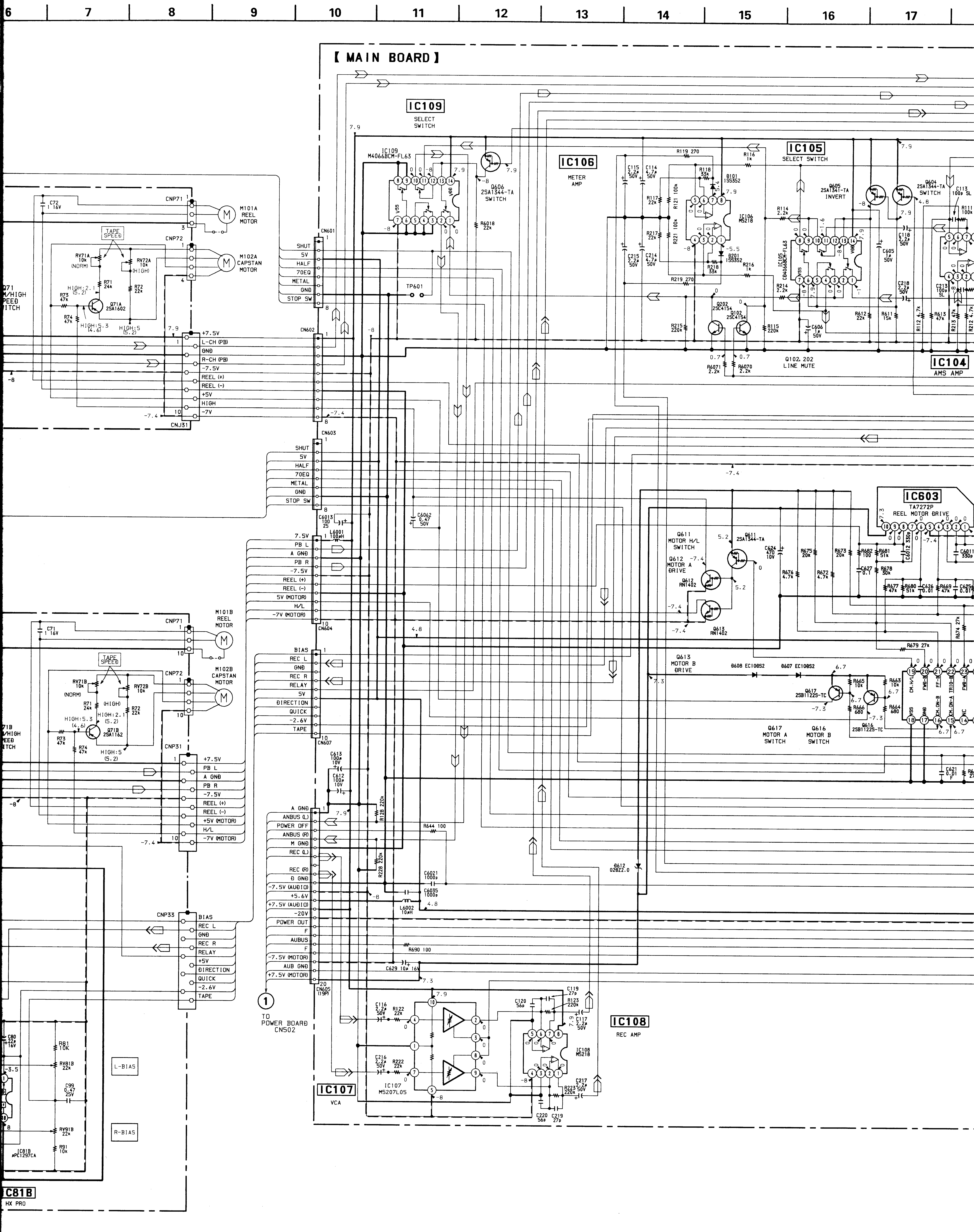
Note on Mounting Diagram :

- ○ : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

Note on Schematic Diagram :

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ━━ : B + Line.
- ━ ━ ━ : B − Line.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- Voltages are taken with a VOM (input impedance 10 MΩ).
- Signal path.
  ⊳ : PB(DECK A)
  ▷ : REC(DECK B)
  ▷ : REC(DECK B)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
SW-A BOARD (RA12)
S81 (STOP DET)
S82 (CrO2 DET)
S86 (HALF DET)
CNP81
1 STOP SW
2 GND
3 METAL
4 70EQ
5 HALF
6 +5V
7 SHUT
R84 1.0k
R85 180
IC81A ROTATION DET
PH81 NJL5165
MD-A BOARD
HP101 PLAYBACK HEAD
L-CH
R-CH
CNP32
CNJ32
IC31A PLAYBACK EQ AMP
IC31A LM833M-FL63
PLAYBACK LEVEL (L)
PLAYBACK LEVEL (R)
RV11A 1k
RV21A 1k
Q71 NORM/HIGH SPEED SWITCH
TAPE SPEED
RV71A 10k (NORM)
RV72A 10k (HIGH)
Q71A 2SA1602
CNP71
CNP72
SW-B BOARD (RB12)
S81 (STOP DET)
S83 (METAL DET)
S82 (CrO2 DET)
S84 (ERASE PROOF (SIDE A))
S85 (ERASE PROOF (SIDE B))
S86 (HALF DET)
R81 560
R82 300
R83 1.3k
R84 1.0k
R85 180
IC81B ROTATION DET
PH81 NJL5165
MD-B BOARD
HRP101/HE101 RECORD/PLAYBACK ERASE HEAD
IC31B PLAYBACK EQ AMP
IC31B μPB4570G2
RV11B 1k
RV21B 1k
Q71B NORM/HIGH SPEED SWITCH
RV71B 10k (NORM)
RV72B 10k (HIGH)
Q71B 2SA1162
CNP31
CNP33
RY31B
D31B 1SS352
Q51, 52 BIAS OSC
Q51B 2SD1622S
Q52B 2SD1622S
Q53B BIAS REG.
Q53B 2SD1622S
T51 BIAS OSC
T81
T91
TP81
IC81B μPC1297CA
IC81B HX PRO
GND
PRE DRIVER
VCA
COMP
REG
Vref
L-BIAS
R-BIAS
RV81B 22k
RV91B 22k
16


6
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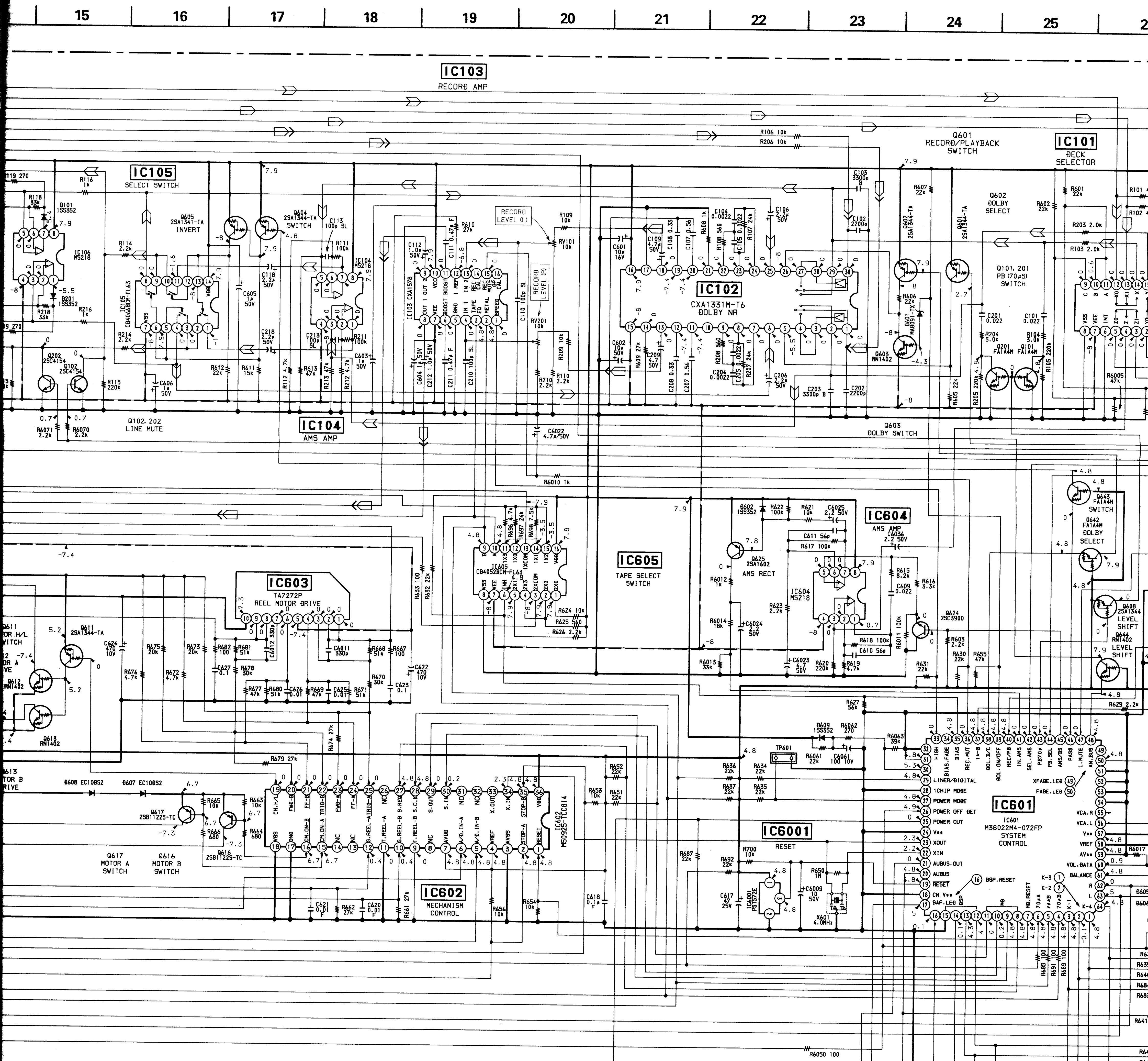
17
【 MAIN BOARD 】
IC109
SELECT SWITCH
IC109 M4066BCM-FL63
Q606 2SA1344-TA SWITCH
IC106
METER AMP
IC106 M5218
IC105
SELECT SWITCH
IC105 CD4066BCM-FL63
Q605 2SA1341-TA INVERT
Q604 2SA1344-TA SWITCH
Q202 2SC4154
Q102 2SC4154
Q102, 202 LINE MUTE
IC104
AMS AMP
D101 1SS352
D201 1SS352
TP601
CNP71
M101A REEL MOTOR
CNP72
M102A CAPSTAN MOTOR
TAPE SPEED
RV71A 10k (NORM)
RV72A 10k (HIGH)
Q71A 2SA1602
Q71 M/HIGH SPEED SWITCH
CNJ31
CN601
SHUT
5V
HALF
70EQ
METAL
GND
STOP SW
CN602
+7.5V
L-CH (PB)
GND
R-CH (PB)
-7.5V
REEL (+)
REEL (-)
+5V
HIGH
-7V
CN603
CN604
7.5V
PB L
A GND
PB R
-7.5V
REEL (+)
REEL (-)
5V (MOTOR)
H/L
-7V (MOTOR)
IC603
TA7272P
REEL MOTOR DRIVE
Q611 2SA1344-TA
Q611 MOTOR H/L SWITCH
Q612 MOTOR A DRIVE
Q612 RN1402
Q613 RN1402
Q613 MOTOR B DRIVE
D608 EC10BS2
D607 EC10BS2
Q617 2SB1122S-TC
Q616 2SB1122S-TC
Q617 MOTOR A SWITCH
Q616 MOTOR B SWITCH
CM.H/L
FWD-B
FF-B
REW-B
VSS
GND
CM.ON-B
CM.ON-A
NC
M101B REEL MOTOR
M102B CAPSTAN MOTOR
RV71B 10k (NORM)
RV72B 10k
Q71B 2SA1162
CNP31
CN607
BIAS
REC L
GND
REC R
RELAY
5V
DIRECTION
QUICK
-2.6V
TAPE
CN605 (15P)
A GND
ANBUS (L)
POWER OFF
ANBUS (R)
M GND
REC (L)
REC (R)
D GND
-7.5V (AUDIO)
+5.6V
+7.5V (AUDIO)
-20V
POWER OUT
F
AUBUS
-7.5V (MOTOR)
AUB GND
+7.5V (MOTOR)
D612 02DZ2.0
L6001 100μH
L6002 10μH
CNP33
+5V
①
TO POWER BOARD CN502
IC107
VCA
IC107 M5207L05
IC108
REC AMP
IC108 M5218
L-BIAS
R-BIAS
IC81B μPC1297CA
IC81B
HX PRO


15
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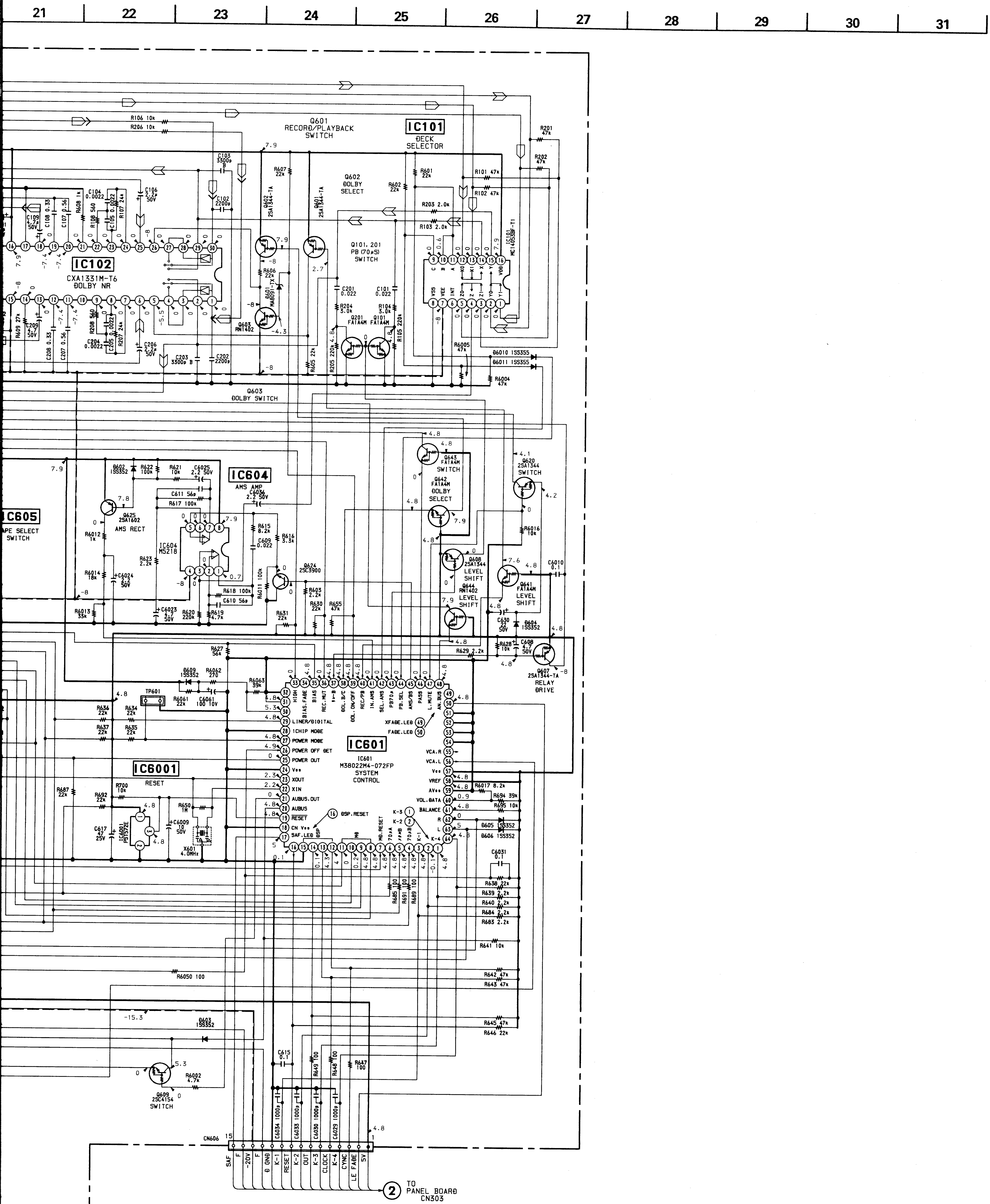
25
IC103
RECORD AMP
IC105
SELECT SWITCH
IC106 M5218
Q605 2SA1341-TA INVERT
Q604 2SA1344-TA SWITCH
IC104 M5218
IC104
AMS AMP
RECORD LEVEL (L)
RECORD LEVEL (R)
RV101 10k
RV201 10k
IC103 CXA1578
IC102
CXA1331M-T6
DOLBY NR
Q601
RECORD/PLAYBACK SWITCH
Q602
DOLBY SELECT
IC101
DECK SELECTOR
Q101, 201
PB (70μS) SWITCH
Q201 FA1A4M
Q101 FA1A4M
Q603
DOLBY SWITCH
Q202 2SC4154
Q102 2SC4154
Q102, 202
LINE MUTE
IC603
TA7272P
REEL MOTOR DRIVE
Q611 2SA1344-TA
Q612 RN1402
Q613 RN1402
IC605
TAPE SELECT SWITCH
IC605 CB4052BCN-FL63
Q602 1SS352
Q625 2SA1602
AMS RECT
IC604
AMS AMP
IC604 M5218
Q624 2SC3900
Q643 FA1A4M SWITCH
Q642 FA1A4M DOLBY SELECT
Q608 2SA1344 LEVEL SHIFT
Q644 RN1402 LEVEL SHIFT
TP601
Q617 2SB1122S-TC
Q616 2SB1122S-TC
Q617
MOTOR A SWITCH
Q616
MOTOR B SWITCH
D608 EC10BS2
D607 EC10BS2
IC602
M50925-1CC814
IC602
MECHANISM CONTROL
IC6001
RESET
IC6001 PST572E
X601 4.0MHz
IC601
IC601
M38022M4-072FP
SYSTEM CONTROL
LINER/DIGITAL
1CHIP MODE
POWER MODE
POWER OFF DET
POWER OUT
XOUT
XIN
AUBUS.OUT
AUBUS
RESET
CN Vss
SAF.LED
DSP.RESET
XFADE.LED
FADE.LED
VCA.R
VCA.L
VREF
AVss
VOL.BATA
BALANCE
R6050 100
R686 100
D603 1SS352
Q609 2SC4154 SWITCH
CN606
SAF
-20V
D GND
K-1
RESET
K-2
OUT
K-3
CLOCK
K-4
CYNC
LE FADE
5V
②
TO PANEL BOARD CN303


21
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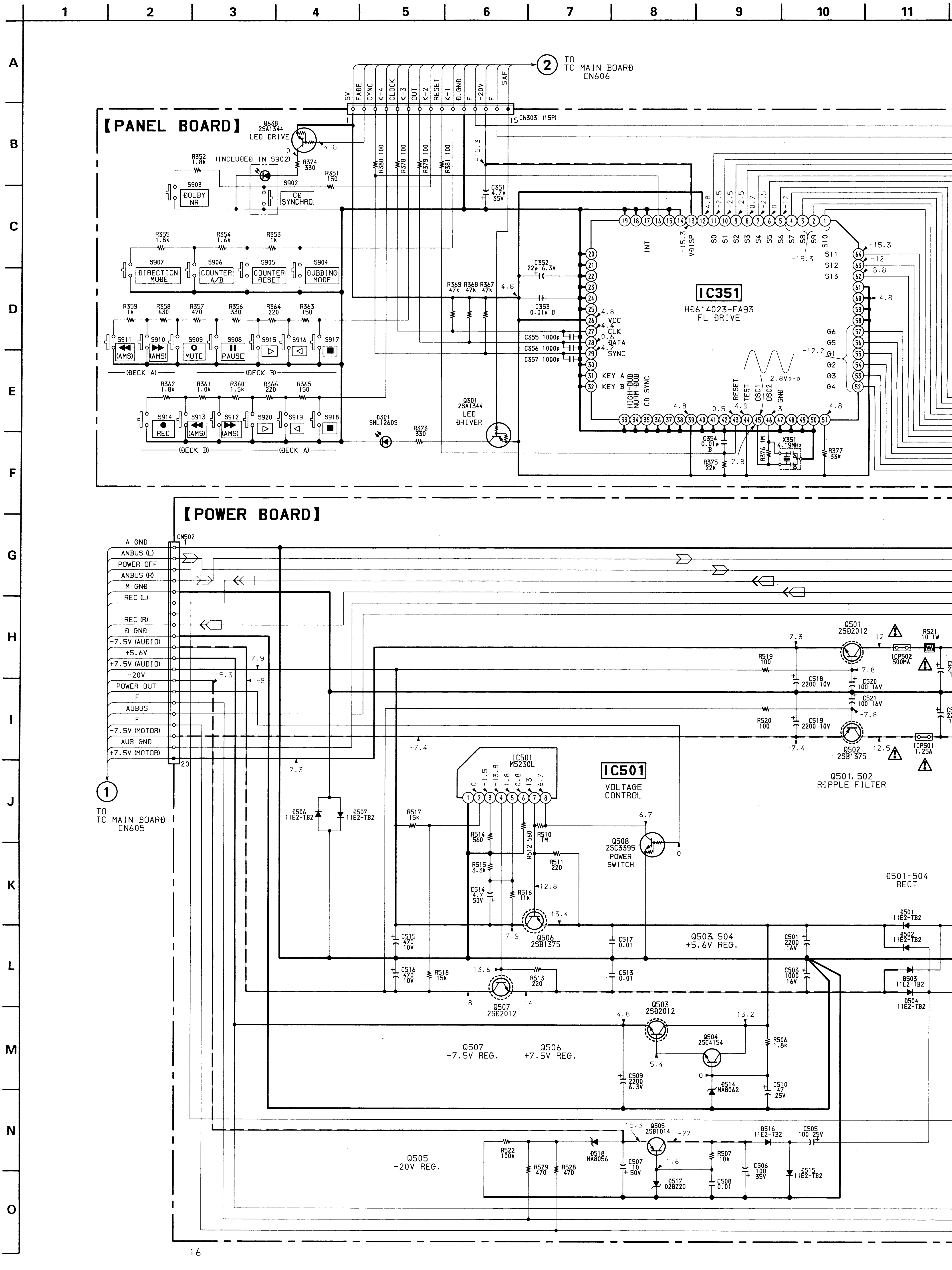
31
Q601 RECORD/PLAYBACK SWITCH
IC101 DECK SELECTOR
IC101 MC14053BF-T1
Q602 DOLBY SELECT
Q101, 201 PB (70μS) SWITCH
IC102
CXA1331M-T6 DOLBY NR
Q603 RN1402
Q603 DOLBY SWITCH
Q201 FA1A4M
Q101 FA1A4M
IC604 AMS AMP
IC604 M5218
IC605 TAPE SELECT SWITCH
Q625 2SA1602 AMS RECT
Q624 2SC3900
Q643 FA1A4M SWITCH
Q642 FA1A4M DOLBY SELECT
Q620 2SA1344 SWITCH
Q608 2SA1344 LEVEL SHIFT
Q644 RN1402 LEVEL SHIFT
Q641 FA1A4M LEVEL SHIFT
Q607 2SA1344-TA RELAY DRIVE
IC601
IC601 M38022M4-072FP SYSTEM CONTROL
IC6001 RESET
TP601
X601 4.0MHz
Q609 2SC4154 SWITCH
CN606
SAF
F
-20V
F
D GND
K-1
RESET
K-2
OUT
K-3
CLOCK
K-4
CYNC
LE FADE
5V
② TO PANEL BOARD CN303

5-5. SCHEMATIC DIAGRAM — Panel Section —



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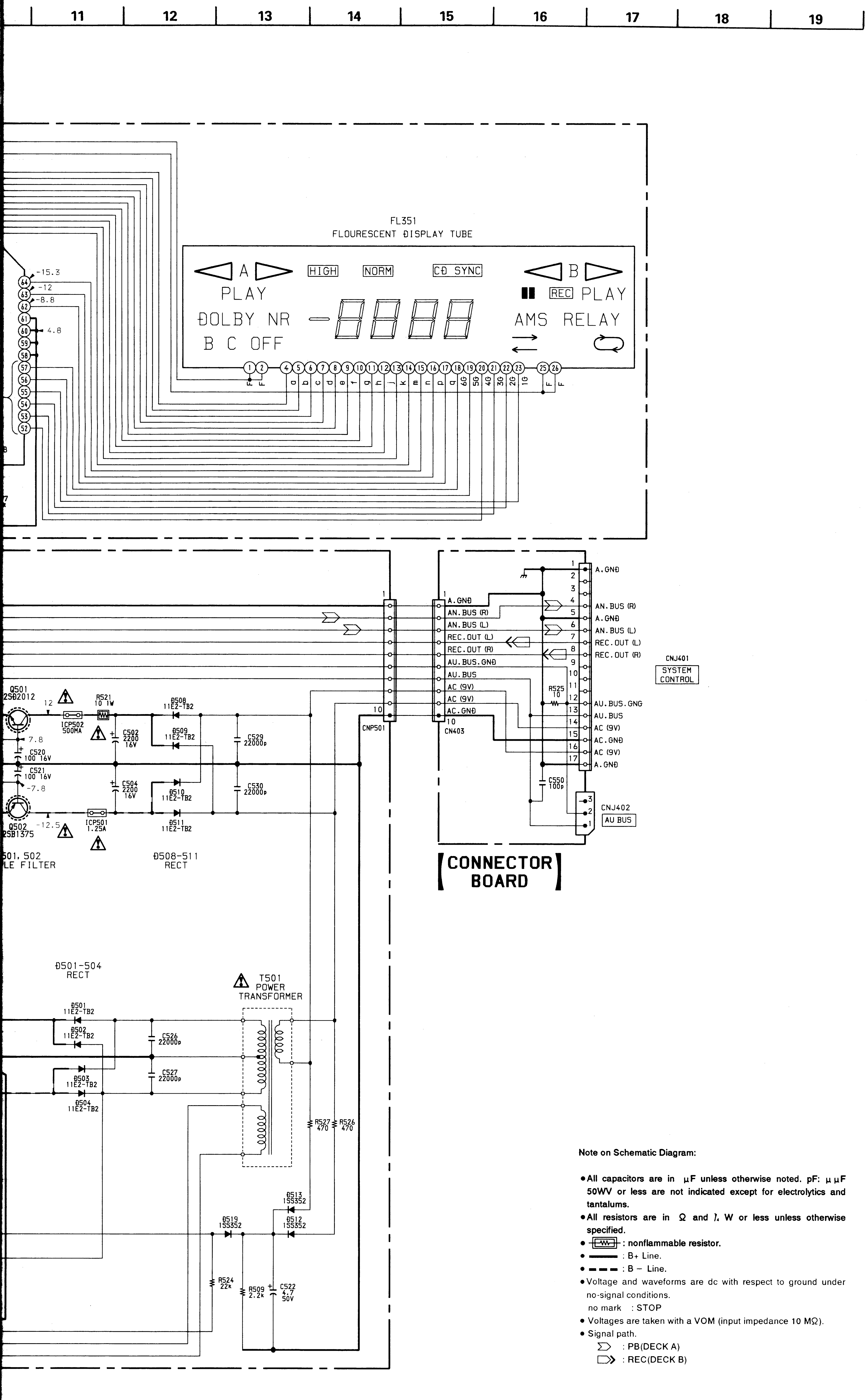
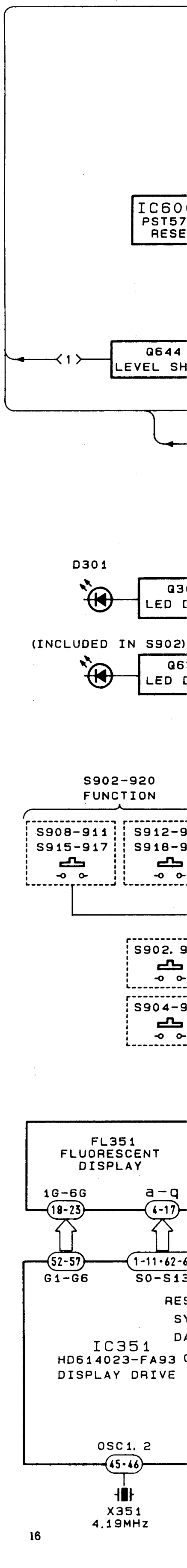
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
【PANEL BOARD】
【POWER BOARD】
② TO TC MAIN BOARD CN606
① TO TC MAIN BOARD CN605
5V
FADE
CYNC
K-4
CLOCK
K-3
OUT
K-2
RESET
K-1
D.GND
F
-20V
F
SAF
CN303 (15P)
Q638 2SA1344 LED DRIVE
R352 1.8k
(INCLUDED IN S902)
R374 330
R351 150
S903 DOLBY NR
S902 CD SYNCHRO
R355 1.8k
R354 1.6k
R353 1k
S907 DIRECTION MODE
S906 COUNTER A/B
S905 COUNTER RESET
S904 DUBBING MODE
R359 1k
R358 630
R357 470
R356 330
R364 220
R363 150
S911 (AMS)
S910 (AMS)
S909 MUTE
S908 PAUSE
S915
S916
S917
(DECK A)
(DECK B)
R362 1.8k
R361 1.0k
R360 1.5k
R366 220
R365 150
S914 REC
S913 (AMS)
S912 (AMS)
S920
S919
S918
D301 SML1260S
R373 330
Q301 2SA1344 LED DRIVER
R380 100
R378 100
R379 100
R381 100
C351 4.7μ 35V
C352 22μ 6.3V
C353 0.01μ B
R369 47k
R368 47k
R367 47k
C355 1000p
C356 1000p
C357 1000p
IC351
HD614023-FA93
FL DRIVE
VDISP
INT
S0 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10
S11 S12 S13
G6 G5 G1 G2 G3 G4
VCC
CLK
DATA
SYNC
KEY A
KEY B
HIGH-DUB
NORM-DUB
CD SYNC
RESET
TEST
OSC1
OSC2
GND
2.8Vp-p
C354 0.01μ B
R375 22k
R376 1M
X351 4.19MHz
R377 33k
CN502
A GND
ANBUS (L)
POWER OFF
ANBUS (R)
M GND
REC (L)
REC (R)
D GND
-7.5V (AUDIO)
+5.6V
+7.5V (AUDIO)
-20V
POWER OUT
F
AUBUS
F
-7.5V (MOTOR)
AUB GND
+7.5V (MOTOR)
IC501 M5230L
IC501 VOLTAGE CONTROL
D506 11E2-TB2
D507 11E2-TB2
R517 15k
R514 560
R512 560
R510 1M
R511 220
R515 3.3k
C514 4.7 50V
R516 11k
Q506 2SB1375
Q508 2SC3395 POWER SWITCH
C515 470 10V
C516 470 10V
R518 15k
C517 0.01
C513 0.01
R513 220
Q507 2SD2012
Q503, 504 +5.6V REG.
Q503 2SD2012
Q504 2SC4154
R506 1.8k
Q507 -7.5V REG.
Q506 +7.5V REG.
C509 2200 6.3V
D514 MA8062
C510 47 25V
Q501 2SD2012
R521 10 1W
ICP502 500MA
R519 100
C518 2200 10V
C520 100 16V
C521 100 16V
R520 100
C519 2200 10V
Q502 2SB1375
ICP501 1.25A
Q501, 502 RIPPLE FILTER
D501-504 RECT
D501 11E2-TB2
D502 11E2-TB2
C501 2200 16V
C503 1000 16V
D503 11E2-TB2
D504 11E2-TB2
Q505 2SB1014
D516 11E2-TB2
C505 100 25V
R522 100k
R529 470
R528 470
D518 MA8056
C507 10 50V
R507 10k
C506 100 35V
D515 11E2-TB2
D517 02DZ20
C508 0.01
Q505 -20V REG.
16
20


11
12
13
14
15
16
17
18
19
FL351
FLOURESCENT DISPLAY TUBE
A
HIGH
NORM
CD SYNC
B
PLAY
REC
PLAY
DOLBY NR
AMS RELAY
B C OFF
-15.3
-12
-8.8
4.8
Q501
2SD2012
12
R521
10 1W
ICP502
500MA
7.8
C520
100 16V
C521
100 16V
-7.8
C502
2200
16V
C504
2200
16V
D508
11E2-TB2
D509
11E2-TB2
D510
11E2-TB2
D511
11E2-TB2
C529
22000p
C530
22000p
Q502
2SB1375
-12.5
ICP501
1.25A
501, 502
LE FILTER
D508-511
RECT
CNP501
A.GND
AN.BUS (R)
AN.BUS (L)
REC.OUT (L)
REC.OUT (R)
AU.BUS.GND
AU.BUS
AC (9V)
AC (9V)
AC.GND
CN403
R525
10
C550
100p
A.GND
AN.BUS (R)
A.GND
AN.BUS (L)
REC.OUT (L)
REC.OUT (R)
AU.BUS.GNG
AU.BUS
AC (9V)
AC.GND
AC (9V)
A.GND
CNJ401
SYSTEM CONTROL
CNJ402
AU BUS
CONNECTOR BOARD
D501-504
RECT
T501
POWER TRANSFORMER
D501
11E2-TB2
D502
11E2-TB2
D503
11E2-TB2
D504
11E2-TB2
C526
22000p
C527
22000p
R527
470
R526
470
D513
1SS352
D519
1SS352
D512
1SS352
R524
22k
R509
2.2k
C522
4.7
50V

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⊟ : nonflammable resistor.
- ━━ : B+ Line.
- ━ ━ ━ : B – Line.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- Voltages are taken with a VOM (input impedance 10 MΩ).
- Signal path.
  ⊳ : PB(DECK A)
  ▷▷ : REC(DECK B)

5-6. BLOCK DIAGRAM


IC60
PST57
RESE
Q644
LEVEL SH
D301
Q3
LED
(INCLUDED IN S902)
Q6
LED
S902-920
FUNCTION
S908-911
S915-917
S912-9
S918-9
S902, 9
S904-9
FL351
FLUORESCENT
DISPLAY
1G-6G
a-q
18-23
4-17
52-57
G1-G6
S0-S1
IC351
HD614023-FA93
DISPLAY DRIVE
OSC1, 2
45-46
X351
4.19MHz
16

18 | 19

J401
STEM
NTROL

gram:

µF unless otherwise noted. pF: µµF

ot indicated except for electrolytics and

Ω and ¼ W or less unless otherwise

ble resistor.

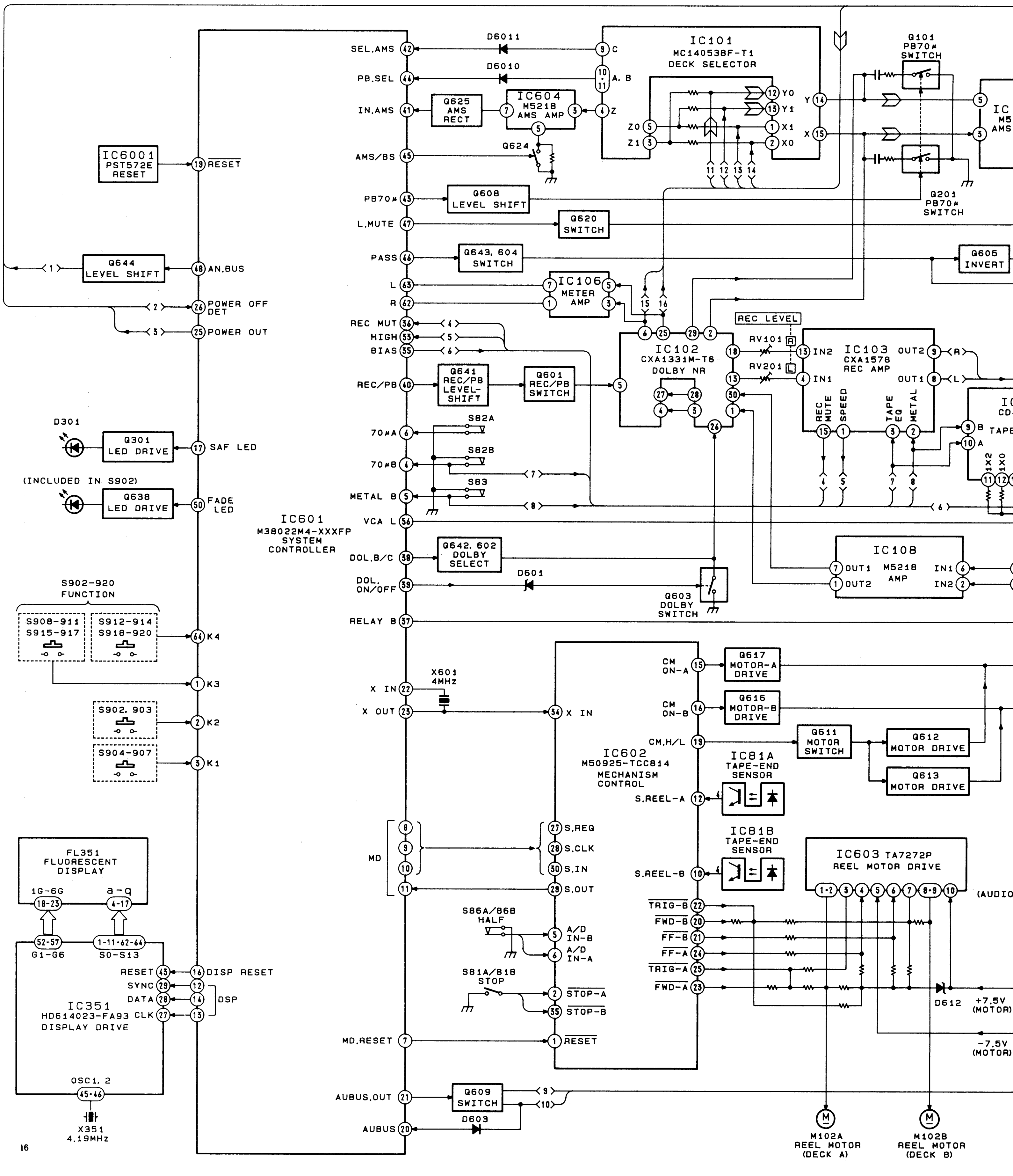
ms are dc with respect to ground under

ith a VOM (input impedance 10 MΩ).

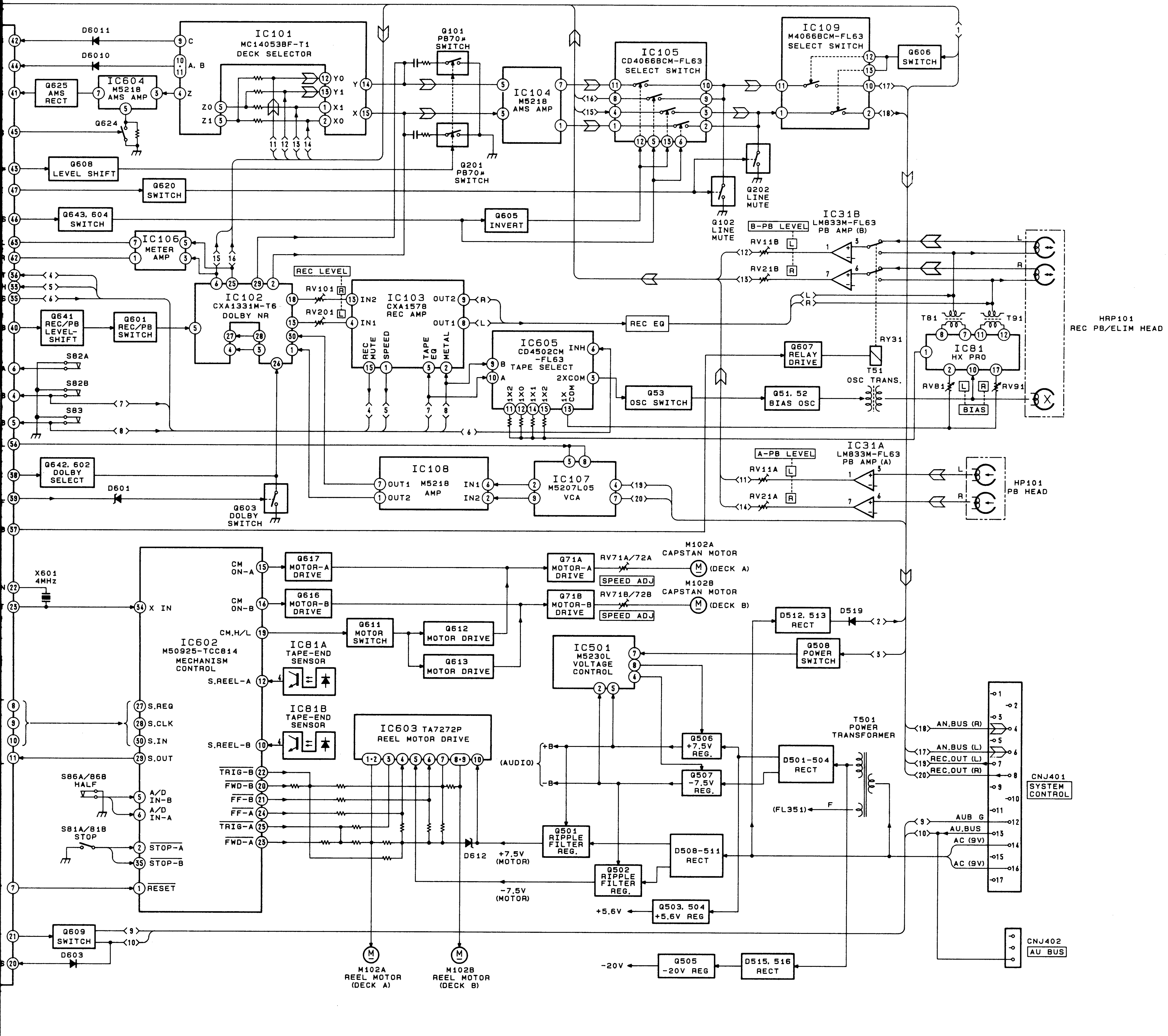
A)

K B)

5-6. BLOCK DIAGRAM

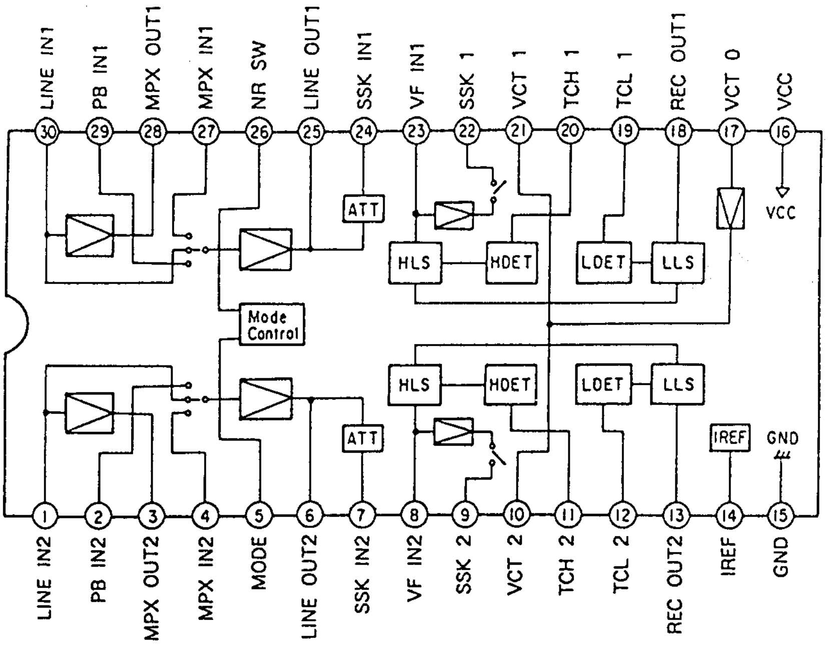


IC101
MC14053BF-T1
DECK SELECTOR
D6011
D6010
SEL.AMS
PB.SEL
IN.AMS
AMS/BS
PB70µ
L.MUTE
PASS
L
R
REC MUT
HIGH
BIAS
REC/PB
70µA
70µB
METAL B
VCA L
DOL.B/C
DOL. ON/OFF
RELAY B
X IN
X OUT
MD
MD.RESET
AUBUS.OUT
AUBUS
IC6001
PST572E
RESET
RESET
Q644
LEVEL SHIFT
AN.BUS
POWER OFF DET
POWER OUT
D301
Q301
LED DRIVE
SAF LED
(INCLUDED IN S902)
Q638
LED DRIVE
FADE LED
IC601
M38022M4-XXXFP
SYSTEM
CONTROLLER
S902-920
FUNCTION
S908-911
S915-917
S912-914
S918-920
K4
K3
S902, 903
K2
S904-907
K1
FL351
FLUORESCENT
DISPLAY
1G-6G
a-q
G1-G6
S0-S13
IC351
HD614023-FA93
DISPLAY DRIVE
RESET
SYNC
DATA
CLK
DISP RESET
DSP
OSC1, 2
X351
4.19MHz
16
Q625
AMS
RECT
IC604
M5218
AMS AMP
Q624
Q608
LEVEL SHIFT
Q620
SWITCH
Q643, 604
SWITCH
IC106
METER
AMP
Q641
REC/PB
LEVEL-
SHIFT
Q601
REC/PB
SWITCH
S82A
S82B
S83
Q642, 602
DOLBY
SELECT
D601
Q603
DOLBY
SWITCH
IC102
CXA1331M-T6
DOLBY NR
REC LEVEL
RV101
RV201
IC103
CXA1578
REC AMP
IN2
IN1
OUT2
OUT1
REC MUTE
SPEED
TAPE EQ
METAL
TAPE
IC108
M5218
AMP
OUT1
OUT2
IN1
IN2
Q101
PB70µ
SWITCH
Q201
PB70µ
SWITCH
Q605
INVERT
IC
M5
AMS
CD
X601
4MHz
IC602
M50925-TCC814
MECHANISM
CONTROL
CM ON-A
CM ON-B
CM.H/L
S.REEL-A
S.REEL-B
S.REG
S.CLK
S.IN
S.OUT
X IN
Q617
MOTOR-A
DRIVE
Q616
MOTOR-B
DRIVE
Q611
MOTOR
SWITCH
Q612
MOTOR DRIVE
Q613
MOTOR DRIVE
IC81A
TAPE-END
SENSOR
IC81B
TAPE-END
SENSOR
IC603 TA7272P
REEL MOTOR DRIVE
(AUDIO
TRIG-B
FWD-B
FF-B
FF-A
TRIG-A
FWD-A
S86A/868
HALF
A/D IN-B
A/D IN-A
S81A/818
STOP
STOP-A
STOP-B
RESET
D612
+7.5V (MOTOR)
-7.5V (MOTOR)
Q609
SWITCH
D603
M102A
REEL MOTOR
(DECK A)
M102B
REEL MOTOR
(DECK B)

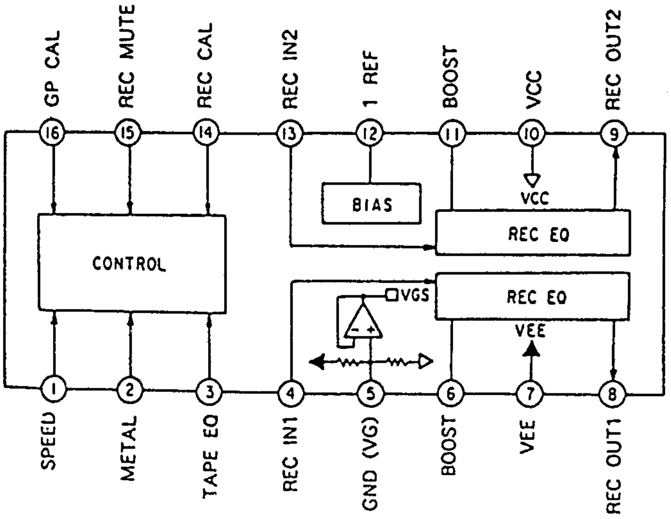

IC101
MC14053BF-T1
DECK SELECTOR
D6011
D6010
Q625
AMS
RECT
IC604
M5218
AMS AMP
Q624
Q608
LEVEL SHIFT
Q620
SWITCH
Q643, 604
SWITCH
IC106
METER
AMP
Q641
REC/PB
LEVEL-
SHIFT
Q601
REC/PB
SWITCH
S82A
S82B
S83
Q642, 602
DOLBY
SELECT
D601
Q603
DOLBY
SWITCH
Q101
PB70*
SWITCH
Q201
PB70*
SWITCH
IC104
M5218
AMS AMP
IC105
CD4066BCM-FL63
SELECT SWITCH
IC109
M4066BCM-FL63
SELECT SWITCH
Q606
SWITCH
Q202
LINE
MUTE
Q102
LINE
MUTE
Q605
INVERT
IC102
CXA1331M-T6
DOLBY NR
REC LEVEL
RV101
RV201
IC103
CXA1578
REC AMP
IN2
IN1
OUT2
OUT1
REC MUTE
SPEED
TAPE EQ
METAL
REC EQ
IC605
CD4502CM
-FL63
TAPE SELECT
INH
2XCOM
1X2
1X0
1X1
1X2
1X COM
Q607
RELAY
DRIVE
Q53
OSC SWITCH
Q51, 52
BIAS OSC
T51
OSC TRANS.
RY31
IC31B
LM833M-FL63
PB AMP (B)
B-PB LEVEL
RV11B
RV21B
T81
T91
IC81
HX PRO
RV81
RV91
BIAS
HRP101
REC PB/ELIM HEAD
IC31A
LM833M-FL63
PB AMP (A)
A-PB LEVEL
RV11A
RV21A
HP101
PB HEAD
IC108
M5218
AMP
OUT1
OUT2
IN1
IN2
IC107
M5207L05
VCA
X601
4MHz
X IN
IC602
M50925-TCC814
MECHANISM
CONTROL
CM ON-A
CM ON-B
CM,H/L
S.REEL-A
S.REEL-B
S.REQ
S.CLK
S.IN
S.OUT
A/D IN-B
A/D IN-A
STOP-A
STOP-B
RESET
TRIG-B
FWD-B
FF-B
FF-A
TRIG-A
FWD-A
S86A/86B
HALF
S81A/81B
STOP
Q617
MOTOR-A
DRIVE
Q616
MOTOR-B
DRIVE
Q611
MOTOR
SWITCH
Q612
MOTOR DRIVE
Q613
MOTOR DRIVE
IC81A
TAPE-END
SENSOR
IC81B
TAPE-END
SENSOR
Q71A
MOTOR-A
DRIVE
Q71B
MOTOR-B
DRIVE
RV71A/72A
RV71B/72B
SPEED ADJ
M102A
CAPSTAN MOTOR
(DECK A)
M102B
CAPSTAN MOTOR
(DECK B)
IC603 TA7272P
REEL MOTOR DRIVE
(AUDIO)
D612
+7.5V
(MOTOR)
-7.5V
(MOTOR)
M102A
REEL MOTOR
(DECK A)
M102B
REEL MOTOR
(DECK B)
IC501
M5230L
VOLTAGE
CONTROL
D512, 513
RECT
D519
Q508
POWER
SWITCH
Q506
+7.5V
REG.
Q507
-7.5V
REG.
D501-504
RECT
T501
POWER
TRANSFORMER
(FL351)
Q501
RIPPLE
FILTER
REG.
Q502
RIPPLE
FILTER
REG.
D508-511
RECT
+5.6V
Q503, 504
+5.6V REG
-20V
Q505
-20V REG
D515, 516
RECT
Q609
SWITCH
D603
AN.BUS (R)
AN.BUS (L)
REC.OUT (L)
REC.OUT (R)
AUB G
AU.BUS
AC (9V)
AC (9V)
CNJ401
SYSTEM
CONTROL
CNJ402
AU BUS

5-7. IC BLOCK DIAGRAM

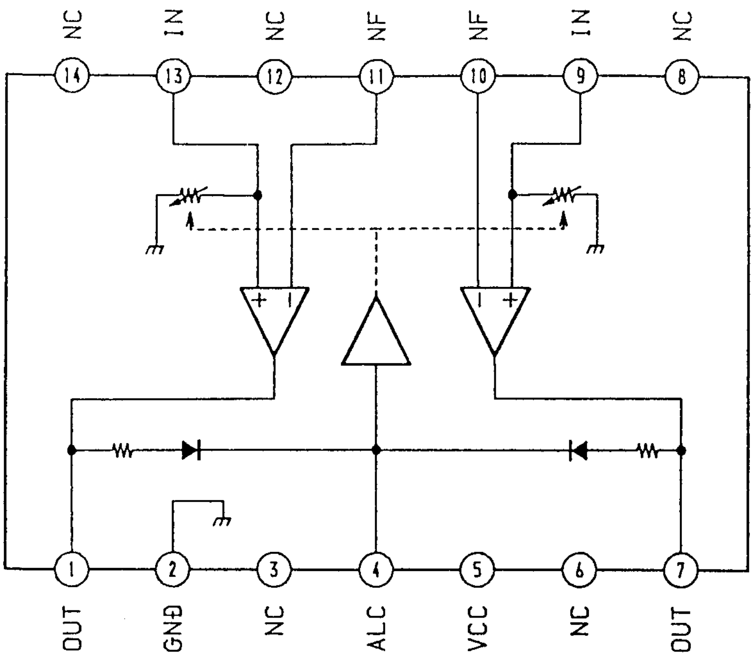
- IC102 CXA1131M


LINE IN1
PB IN1
MPX OUT1
MPX IN1
NR SW
LINE OUT1
SSK IN1
VF IN1
SSK 1
VCT 1
TCH 1
TCL 1
REC OUT1
VCT 0
VCC
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
ATT
HLS
HDET
LDET
LLS
VCC
Mode Control
HLS
HDET
LDET
LLS
ATT
IREF
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
LINE IN2
PB IN2
MPX OUT2
MPX IN2
MODE
LINE OUT2
SSK IN2
VF IN2
SSK 2
VCT 2
TCH 2
TCL 2
REC OUT2
IREF
GND

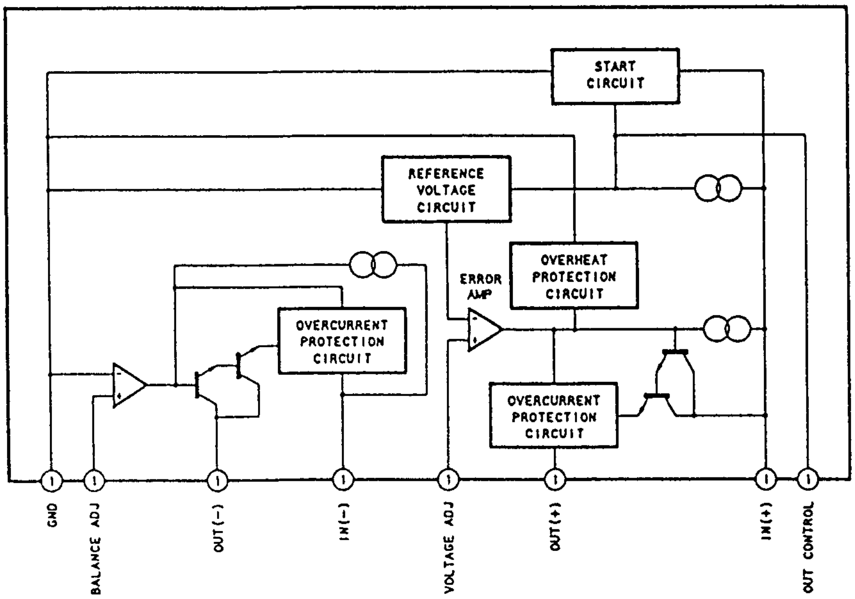
- IC103 CXA1578M


GP CAL
REC MUTE
REC CAL
REC IN2
1 REF
BOOST
VCC
REC OUT2
16
15
14
13
12
11
10
9
BIAS
VCC
REC EQ
CONTROL
VGS
REC EQ
VEE
1
2
3
4
5
6
7
8
SPEED
METAL
TAPE EQ
REC IN1
GND (VG)
BOOST
VEE
REC OUT1

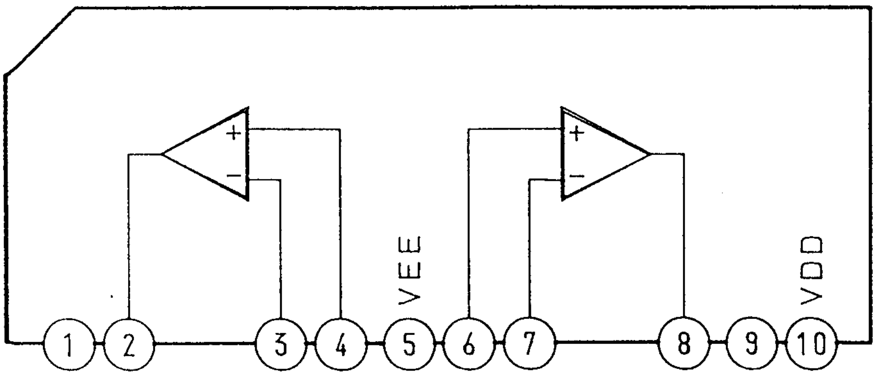
• IC106 BA3308F


NC
IN
NC
NF
NF
IN
NC
14
13
12
11
10
9
8
+
I
I
+
1
2
3
4
5
6
7
OUT
GND
NC
ALC
VCC
NC
OUT

• IC501 M5230L-A


START CIRCUIT
REFERENCE VOLTAGE CIRCUIT
OVERHEAT PROTECTION CIRCUIT
ERROR AMP
OVERCURRENT PROTECTION CIRCUIT
OVERCURRENT PROTECTION CIRCUIT
GND
BALANCE ADJ
OUT(-)
IN(-)
VOLTAGE ADJ
OUT(+)
IN(+)
OUT CONTROL

• IC603 TA7272P


+
−
+
−
VEE
VDD
1
2
3
4
5
6
7
8
9
10

SECTION 6
EXPLODED VIEWS

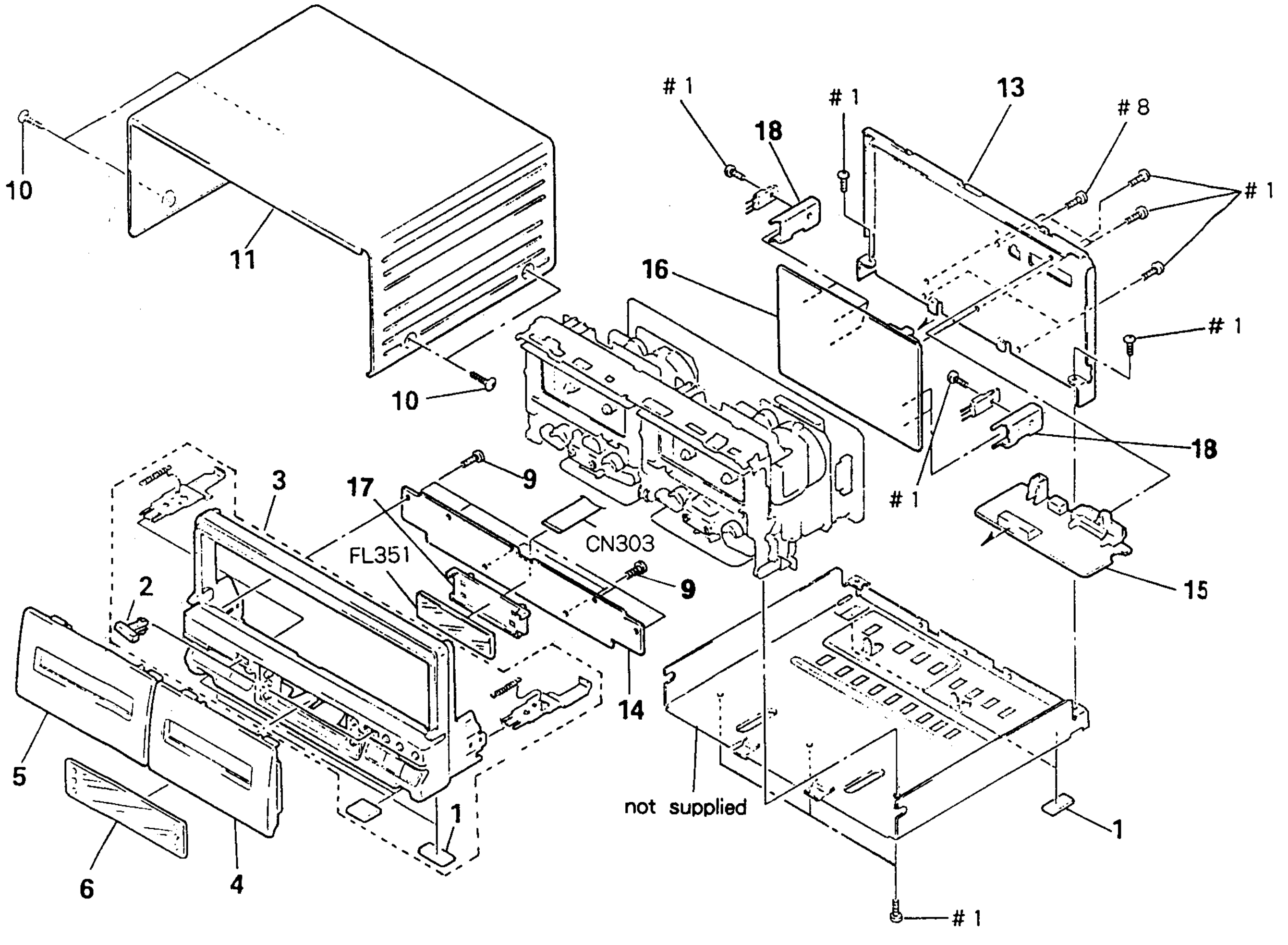
NOTE:

- −XX, −X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

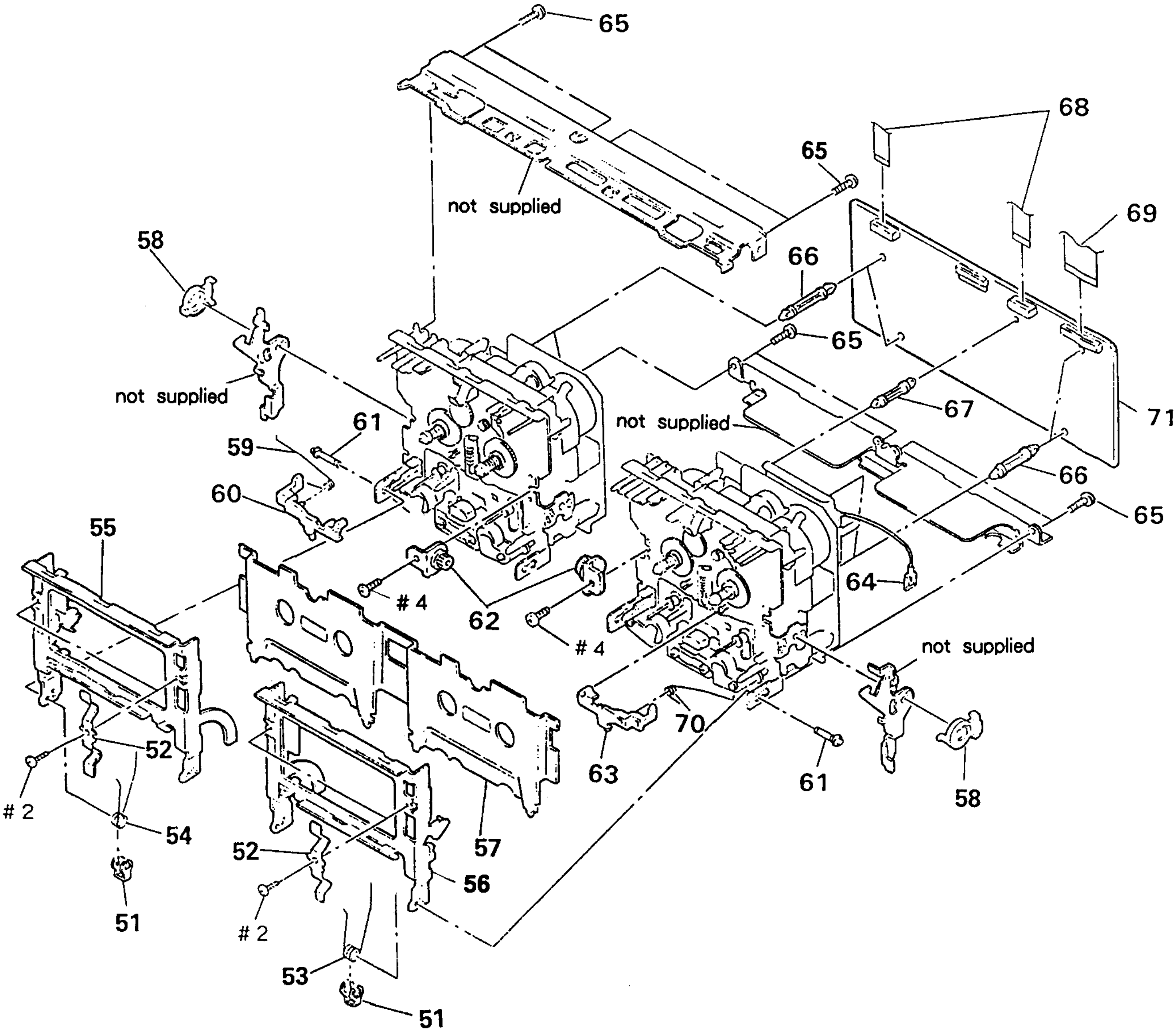
- IT : Italian model
  G : Germany model
  EA: Saudi Arabia model
  SP : Singapore model
  MY: Malaysia model
  AUS: Australian model
  JE : Tourist model

6-1. FRONT PANEL SECTION – 1



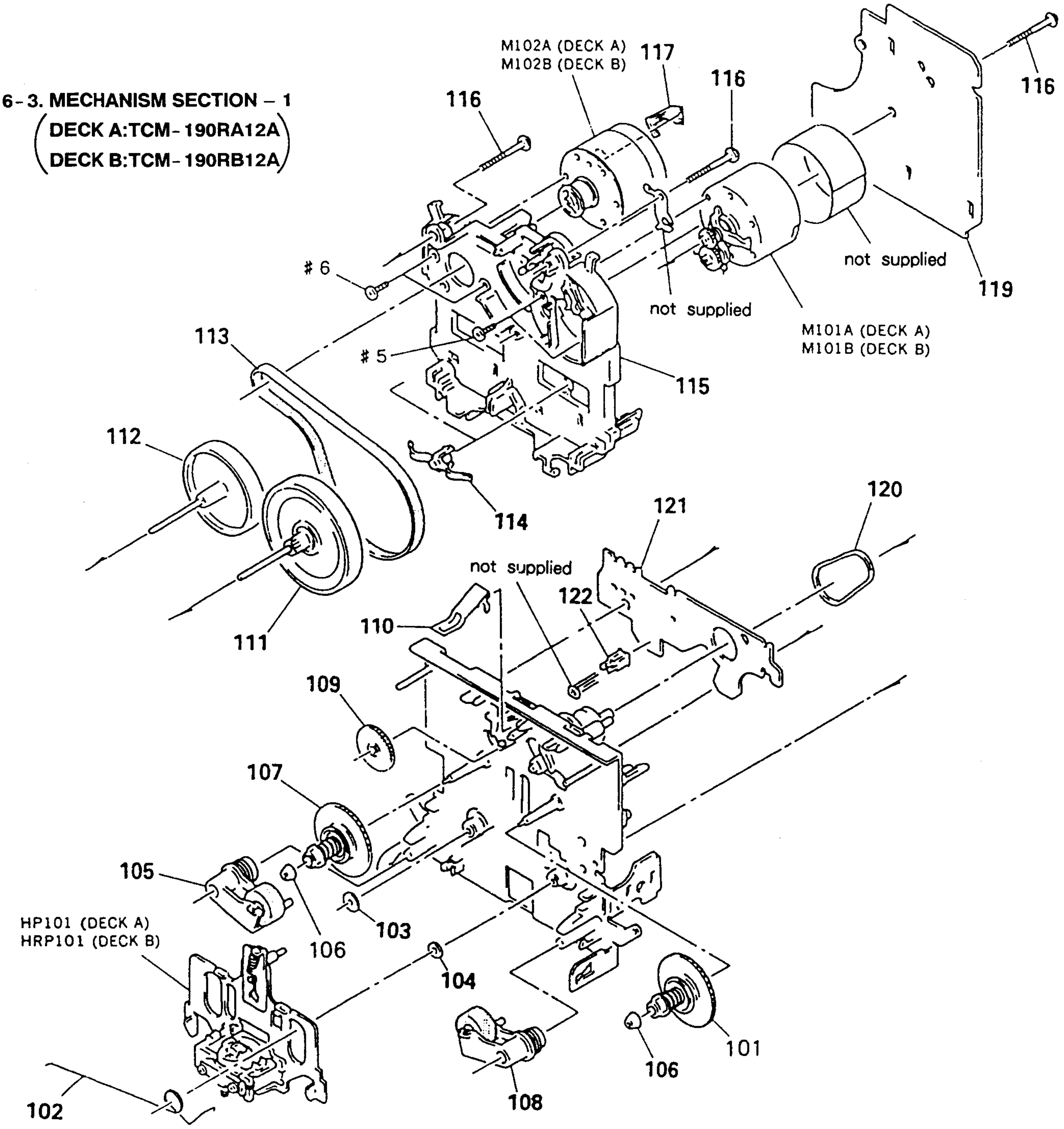
Ref. No.	Part No.	Description	Remarks
1	4-930-336-21	FOOT (FELT)	
2	3-383-665-01	WINDOW (AZIMUTH)	
3	X-3366-469-3	PANEL ASSY, FRONT	
4	X-3366-470-2	LID (R) ASSY, CASSETTE	
5	X-3365-749-1	LID (L) ASSY, CASSETTE	
6	3-383-666-03	PLATE, INDICATION	
9	4-951-620-01	SCREW (2.6X8), +BVTP	
10	3-363-099-21	SCREW (CASE 3 TP2)	
* 11	3-382-491-01	CASE	
* 13	3-382-505-61	PANEL, BACK (EXCEPT G)	
* 13	3-382-505-71	PANEL, BACK (G)	
* 14	A-2006-979-A	PANEL BOARD, COMPLETE (AEP, IT)	
* 14	A-2006-983-A	PANEL BOARD, COMPLETE (E, AUS, EA, JE, MY, SP)	
* 14	A-2006-987-A	PANEL BOARD, COMPLETE (G)	
* 15	1-647-330-11	CONNECTOR BOARD	
* 16	A-2006-980-A	POWER BOARD, COMPLETE (AEP, IT)	
* 16	A-2006-984-A	POWER BOARD, COMPLETE (E, AUS, EA, JE, MY, SP)	
* 16	A-2006-988-A	POWER BOARD, COMPLETE (G)	
* 17	3-367-839-01	HOLDER, FL TUBE	
* 18	3-309-144-31	HEAT SINK	
CN303	1-696-746-11	WIRE (FLAT TYPE) (15 CORE)	
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT	

6-2. FRONT PANEL SECTION – 2


65
68
65
not supplied
69
58
66
not supplied
65
61
59
not supplied
67
71
60
66
55
65
64
#4
62
#4
not supplied
70
52
63
61
58
#2
54
57
52
56
51
#2
53
51

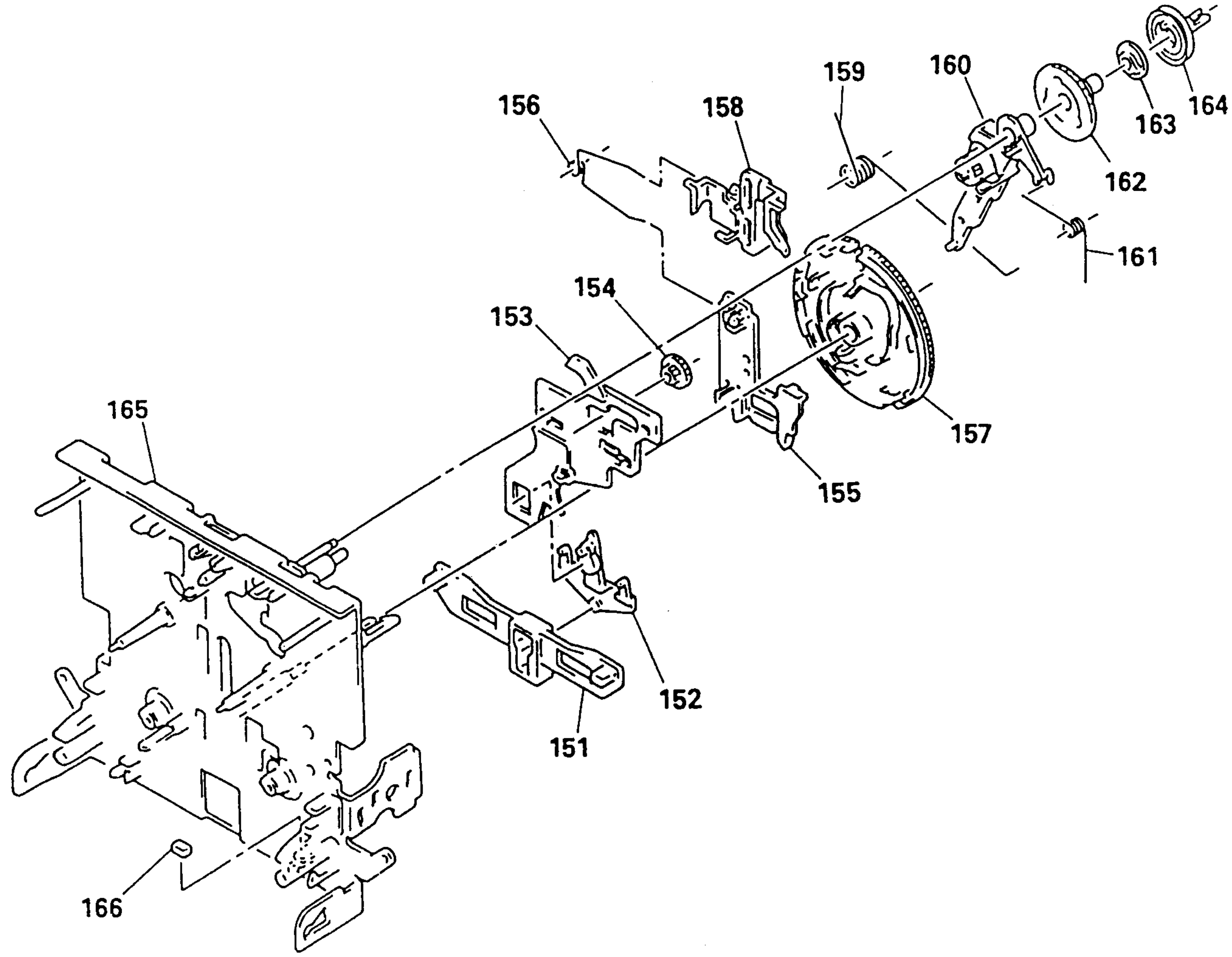
Ref. No.	Part No.	Description	Remarks
51	3-367-720-01	RING (W), RETAINING	
52	3-340-137-01	SPRING, CASSETTE RETAINER	
53	3-354-960-01	SPRING (LOADING R), TORSION	
54	3-354-959-01	SPRING (LOADING L), TORSION	
55	X-3362-857-1	HOLDER (L) ASSY, CASSETTE	
56	X-3362-856-1	HOLDER (R) ASSY, CASSETTE	
57	3-367-711-01	RETAINER, CASSETTE	
58	3-354-957-01	JOINT (LOCK LEVER)	
59	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
60	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
61	3-367-721-01	SHAFT (FULCRUM SHAFT)	
62	3-354-963-01	DAMPER	
63	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
64	1-690-880-41	LEAD (WITH CONNECTOR)	
65	4-951-620-01	SCREW (2.6X8), +BVTP	
* 66	3-682-419-21	HOLDER, P.C.B	
* 67	3-682-419-11	HOLDER, P.C.B	
68	1-590-902-11	WIRE, FLAT TYPE (9 CORE)	
69	1-696-748-11	WIRE (FLAT TYPE) (19 CORE)	
70	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
* 71	A-2006-978-A	MAIN BOARD, COMPLETE(AEP, IT)	
* 71	A-2006-982-A	MAIN BOARD, COMPLETE(E, AUS, EA, JE, MY, SP)	
* 71	A-2006-986-A	MAIN BOARD, COMPLETE(G)	

6-3. MECHANISM SECTION - 1
(DECK A:TCM-190RA12A
DECK B:TCM-190RB12A)


M102A (DECK A)
M102B (DECK B)
117
116
116
116
#6
not supplied
not supplied
119
M101A (DECK A)
M101B (DECK B)
113
#5
115
112
114
121
120
not supplied
122
110
111
109
107
105
HP101 (DECK A)
HRP101 (DECK B)
106
103
104
101
106
102
108

Ref. No.	Part No.	Description	Remarks
101	X-3359-404-1	TABLE ASSY, REEL	
102	3-359-455-01	SPRING, TORSION	
103	3-356-714-01	WASHER	
104	3-356-713-01	WASHER	
105	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
106	3-362-308-01	CAP (REEL)	
107	X-3362-078-1	TABLE ASSY (B), REEL	
108	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
109	3-359-424-01	GEAR (REV GEAR)	
110	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	
111	X-3359-406-1	FLYWHEEL (FWD) ASSY	
112	X-3359-410-1	FLYWHEEL (REV) ASSY	
113	3-359-417-01	BELT (FLAT), CAPSTAN	
114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 115	3-359-436-01	BASE (THRUST RETAINER), FITTING	
116	3-359-414-01	SCREW (+PTPWH 2X23)	
117	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
* 119	A-2006-399-A	MOUNTED PCB (RA12A), AUDIO (DECK A)	
* 119	A-2006-401-A	MOUNTED PCB (RB12A), AUDIO (DECK B)	
120	3-359-466-01	BELT (FR), SQUARE	
* 121	1-634-841-14	SW-A BOARD (DECK A)	
* 121	1-634-841-14	SW-B BOARD (DECK B)	
122	3-343-419-01	HOLDER (S SENSER A)	
HP101	A-2003-837-F	BASE ASSY, HEAD(DECK A)	
HRP101	A-2003-838-A	BASE ASSY, HEAD(DECK B)	
M101A	X-3363-501-1	MOTOR(REEL MOTOR) ASSY(DECK A)	
M101B	X-3363-501-1	MOTOR(REEL MOTOR) ASSY(DECK B)	
M102A	X-3359-417-1	MOTOR(CAPSTAN MOTOR) ASSY(DECK A)	
M102B	X-3359-417-1	MOTOR(CAPSTAN MOTOR) ASSY(DECK B)	

6-4. MECHANISM SECTION – 2
(DECK A:TCM-190RA12A
DECK B:TCM-190RB12A)



Ref. No.	Part No.	Description	Remarks
* 151	3-359-425-01	SLIDER (REVERSE SLIDER)	
152	3-359-426-01	LEVER (REVERSE LEVER)	
* 153	3-359-415-01	SLIDER (TRIGGER SLIDER)	
154	3-359-448-01	GEAR (TRIGGER)	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)	
156	3-359-454-01	SPRING, TORSION	
157	3-359-420-01	GEAR (CAM GEAR)	
158	3-359-429-01	SLIDER (BRAKE PLATE)	
159	3-359-456-01	SPRING(TRIGGER SPRING),TORSION	
160	X-3359-405-1	LEVER (FR ARM) ASSY	
161	3-359-453-01	SPRING (FR ARM), TORSION	
162	3-359-419-01	GEAR (FR GEAR)	
163	3-359-421-01	CLUTCH (REEL DISK)	
164	3-359-418-01	PULLEY (FR PULLEY)	
165	X-3363-790-1	CHASSIS ASSY, MECHANICAL	
166	3-359-469-01	SPACER	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- IT : Italian model
  G : Germany model
  EA: Saudi Arabia model
  SP : Singapore model
  MY: Malaysia model
  AUS : Australian model
  JE : Tourist model

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS :
  uF : μF
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- COILS
  uH : μH
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
*	A-2006-978-A	MAIN BOARD, COMPLETE(AEP, IT)			
		********************************			
*	A-2006-982-A	MAIN BOARD, COMPLETE(E, AUS, EA, JE, MY, SP)			
		***			
*	A-2006-986-A	MAIN BOARD, COMPLETE(G)			
		************************			
*	A-2006-979-A	PANEL BOARD, COMPLETE(AEP, IT)			
		********************************			
*	A-2006-983-A	PANEL BOARD, COMPLETE(E, AUS, EA, JE, MY, SP)			
		***			
*	A-2006-987-A	PANEL BOARD, COMPLETE(G)			
		************************			
*	A-2006-980-A	POWER BOARD, COMPLETE (AEP, IT)			
		*********************************			
*	A-2006-984-A	POWER BOARD, COMPLETE(E, AUS, EA, JE, MY, SP)			
		***			
*	A-2006-988-A	POWER BOARD, COMPLETE (G)			
		*************************			
*	1-647-330-11	CONNECTOR BOARD			
		***************			
*	3-367-839-01	HOLDER, FL TUBE			
*	3-309-144-31	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C101	1-136-157-00	FILM	0.022uF	5%	50V
C102	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C103	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C104	1-106-351-00	MYLAR	2200PF	5%	200V
C105	1-106-351-00	MYLAR	2200PF	5%	200V
C106	1-124-925-11	ELECT	2.2uF	20%	100V
C107	1-136-174-00	FILM	0.56uF	5%	50V
C108	1-136-171-00	FILM	0.33uF	5%	50V
C109	1-124-927-11	ELECT	4.7uF	20%	100V
C110	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C111	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C112	1-124-903-11	ELECT	1uF	20%	50V
C113	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C114	1-124-927-11	ELECT	4.7uF	20%	100V
C115	1-124-925-11	ELECT	2.2uF	20%	100V
C116	1-124-257-00	ELECT	2.2uF	20%	50V
C117	1-124-257-00	ELECT	2.2uF	20%	50V
C118	1-124-257-00	ELECT	2.2uF	20%	50V
C119	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C120	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C201	1-136-157-00	FILM	0.022uF	5%	50V
C202	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C203	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C204	1-106-351-00	MYLAR	2200PF	5%	200V
C205	1-106-351-00	MYLAR	2200PF	5%	200V
C206	1-124-925-11	ELECT	2.2uF	20%	100V
C207	1-136-174-00	FILM	0.56uF	5%	50V
C208	1-136-171-00	FILM	0.33uF	5%	50V
C209	1-124-927-11	ELECT	4.7uF	20%	100V
C210	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C211	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C212	1-124-903-11	ELECT	1uF	20%	50V
C213	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C214	1-124-927-11	ELECT	4.7uF	20%	100V
C215	1-124-925-11	ELECT	2.2uF	20%	100V
C216	1-124-257-00	ELECT	2.2uF	20%	50V
C217	1-124-257-00	ELECT	2.2uF	20%	50V
C218	1-124-257-00	ELECT	2.2uF	20%	50V
C219	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C220	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C351	1-126-163-11	ELECT	4.7uF	20%	50V
C352	1-124-638-11	ELECT	22uF	20%	10V
C353	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C354	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C355	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN | POWER | PANEL | CONNECTOR

Ref. No.	Part No.	Description	Remarks		
C356	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C357	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C501	1-126-768-11	ELECT	2200uF	20%	16V
C502	1-126-768-11	ELECT	2200uF	20%	16V
C503	1-124-360-00	ELECT	1000uF	20%	16V
C504	1-126-768-11	ELECT	2200uF	20%	16V
C505	1-124-478-11	ELECT	100uF	20%	25V
C506	1-124-122-11	ELECT	100uF	20%	50V
C507	1-124-907-11	ELECT	10uF	20%	50V
C508	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C509	1-124-893-11	ELECT	2200uF	20%	10V
C510	1-124-477-11	ELECT	47uF	20%	25V
C513	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C514	1-124-927-11	ELECT	4.7uF	20%	100V
C515	1-124-472-11	ELECT	470uF	20%	10V
C516	1-124-472-11	ELECT	470uF	20%	10V
C517	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C518	1-126-927-11	ELECT	2200uF	20%	10V
C519	1-126-927-11	ELECT	2200uF	20%	10V
C520	1-126-101-11	ELECT	100uF	20%	16V
C521	1-126-101-11	ELECT	100uF	20%	16V
C522	1-124-927-11	ELECT	4.7uF	20%	100V
C526	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C527	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C529	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C530	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C550	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C601	1-126-157-11	ELECT	10uF	20%	16V
C602	1-124-907-11	ELECT	10uF	20%	50V
C603	1-124-903-11	ELECT	1uF	20%	50V
C604	1-124-903-11	ELECT	1uF	20%	50V
C605	1-124-903-11	ELECT	1uF	20%	50V
C606	1-124-903-11	ELECT	1uF	20%	50V
C608	1-124-927-11	ELECT	4.7uF	20%	100V
C609	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C610	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C611	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C612	1-126-177-11	ELECT	100uF	20%	10V
C613	1-126-177-11	ELECT	100uF	20%	10V
C615	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C617	1-124-477-11	ELECT	47uF	20%	25V
C618	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C620	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C621	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C622	1-124-472-11	ELECT	470uF	20%	10V
C623	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C624	1-124-472-11	ELECT	470uF	20%	10V
C625	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C626	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C627	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description	Remarks		
C629	1-126-157-11	ELECT	10uF	20%	16V
C630	1-124-916-11	ELECT	22uF	20%	63V
C6009	1-124-907-11	ELECT	10uF	20%	50V
C6010	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C6011	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C6012	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C6013	1-124-478-11	ELECT	100uF	20%	25V
C6021	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6022	1-124-927-11	ELECT	4.7uF	20%	100V
C6023	1-126-163-11	ELECT	4.7uF	20%	50V
C6024	1-124-257-00	ELECT	2.2uF	20%	50V
C6025	1-124-257-00	ELECT	2.2uF	20%	50V
C6029	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6030	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6031	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C6033	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6034	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6035	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C6036	1-124-257-00	ELECT	2.2uF	20%	50V
C6061	1-124-443-00	ELECT	100uF	20%	10V
C6062	1-124-902-00	ELECT	0.47uF	20%	50V
		< CONNECTOR >			
CN303	1-696-746-11	WIRE (FLAT TYPE) (15 CORE)			
* CN403	1-569-505-11	PIN, CONNECTOR 10P			
CN502	1-695-775-11	CONNECTOR, FFC/FPC 19P			
CN601	1-573-101-11	SOCKET, CONNECTOR 9P			
CN602	1-580-783-11	CONNECTOR, BOARD TO BOARD			
CN603	1-573-101-11	SOCKET, CONNECTOR 9P			
CN604	1-580-783-11	CONNECTOR, BOARD TO BOARD			
CN605	1-695-739-11	CONNECTOR, FFC/FPC 19P			
* CN606	1-580-417-11	SOCKET, CONNECTOR 15P			
CN607	1-580-783-11	CONNECTOR, BOARD TO BOARD			
* CNP501	1-569-496-11	SOCKET, CONNECTOR 10P			
		< JACK >			
CNJ401	1-569-624-21	SOCKET, CONNECTOR 17P (SYSTEM CONTROL)			
* CNJ402	1-565-561-11	PIN, CONNECTOR 3P (AM PASS)			
		< DIODE >			
D101	8-719-016-74	DIODE	1SS352		
D201	8-719-016-74	DIODE	1SS352		
D301	8-719-026-64	DIODE	SML1260S-TP4		
D501	8-719-200-02	DIODE	10E2		
D502	8-719-200-02	DIODE	10E2		
D503	8-719-200-02	DIODE	10E2		
D504	8-719-200-02	DIODE	10E2		
D506	8-719-200-02	DIODE	10E2		
D507	8-719-200-02	DIODE	10E2		
D508	8-719-200-02	DIODE	10E2		

Ref. No.	Part No.	Description	Remarks
D509	8-719-200-02	DIODE 10E2	
D510	8-719-200-02	DIODE 10E2	
D511	8-719-200-02	DIODE 10E2	
D512	8-719-016-74	DIODE 1SS352	
D513	8-719-016-74	DIODE 1SS352	
D514	8-719-422-58	DIODE MA8062-TX	
D515	8-719-200-02	DIODE 10E2	
D516	8-719-200-02	DIODE 10E2	
D517	8-719-017-34	DIODE 02DZ20-TPHR3	
D518	8-719-422-46	DIODE MA8056	
D519	8-719-016-74	DIODE 1SS352	
D601	8-719-422-91	DIODE MA8091	
D602	8-719-016-74	DIODE 1SS352	
D603	8-719-016-74	DIODE 1SS352	
D604	8-719-016-74	DIODE 1SS352	
D605	8-719-016-74	DIODE 1SS352	
D606	8-719-016-74	DIODE 1SS352	
D607	8-719-210-33	DIODE EC10DS2	
D608	8-719-210-33	DIODE EC10DS2	
D609	8-719-016-74	DIODE 1SS352	
D612	8-719-016-84	DIODE 02DZ2.0-TPH3	
D6010	8-719-016-74	DIODE 1SS352	
D6011	8-719-016-74	DIODE 1SS352	

< FLUORESCENT >

Ref. No.	Part No.	Description	Remarks
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT	

< IC >

Ref. No.	Part No.	Description	Remarks
IC101	8-759-300-71	IC HD14053BFP	
IC102	8-752-037-90	IC CXA1331M	
IC103	8-752-055-60	IC CXA1578M	
IC104	8-759-636-55	IC M5218AFP	
IC105	8-759-516-47	IC CD4066BCM	
IC106	8-759-636-55	IC M5218AFP	
IC107	8-759-634-96	IC M5207L05	
IC108	8-759-636-55	IC M5218AFP	
IC109	8-759-516-47	IC CD4066BCM	
IC351	8-759-323-35	IC HD-614023-FA93	
IC501	8-759-602-66	IC M5230L-A	
IC601	8-759-163-38	IC M38022M4-072FP	
IC602	8-759-636-67	IC M50925-482FP	
IC603	8-759-207-05	IC TA7272P	
IC604	8-759-636-55	IC M5218AFP	
IC605	8-759-516-41	IC CD4052BCM	
IC6001	8-759-520-90	IC PST572E	

< IC LINK >

Ref. No.	Part No.	Description	Remarks
ICP501	1-532-840-21	LINK, IC	
ICP502	1-532-836-21	LINK, IC	

< COIL >

Ref. No.	Part No.	Description	Remarks
L6001	1-410-482-31	INDUCTOR 100uH	
L6002	1-410-470-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q101	8-729-207-56	TRANSISTOR RN1402	
Q102	8-729-602-21	TRANSISTOR 2SC4154	
Q201	8-729-207-56	TRANSISTOR RN1402	
Q202	8-729-602-21	TRANSISTOR 2SC4154	
Q301	8-729-805-65	TRANSISTOR 2SA1344	
Q501	8-729-209-15	TRANSISTOR 2SD2012	
Q502	8-729-141-83	TRANSISTOR 2SA473	
Q503	8-729-209-15	TRANSISTOR 2SD2012	
Q504	8-729-602-21	TRANSISTOR 2SC4154	
Q505	8-729-118-01	TRANSISTOR 2SB1116	
Q506	8-729-141-83	TRANSISTOR 2SA473	
Q507	8-729-209-15	TRANSISTOR 2SD2012	
Q508	8-729-805-45	TRANSISTOR 2SC3395	
Q601	8-729-805-65	TRANSISTOR 2SA1344	
Q602	8-729-805-65	TRANSISTOR 2SA1344	
Q603	8-729-207-56	TRANSISTOR RN1402	
Q604	8-729-805-65	TRANSISTOR 2SA1344	
Q605	8-729-901-06	TRANSISTOR DTA144EK	
Q606	8-729-805-65	TRANSISTOR 2SA1344	
Q607	8-729-805-65	TRANSISTOR 2SA1344	
Q608	8-729-805-65	TRANSISTOR 2SA1344	
Q609	8-729-602-21	TRANSISTOR 2SC4154	
Q611	8-729-805-65	TRANSISTOR 2SA1344	
Q612	8-729-207-56	TRANSISTOR RN1402	
Q613	8-729-207-56	TRANSISTOR RN1402	
Q616	8-729-804-41	TRANSISTOR 2SB1122-S	
Q617	8-729-804-41	TRANSISTOR 2SB1122-S	
Q620	8-729-805-65	TRANSISTOR 2SA1344	
Q624	8-729-805-40	TRANSISTOR 2SC3900	
Q625	8-729-602-36	TRANSISTOR 2SA1602	
Q638	8-729-805-65	TRANSISTOR 2SA1344	
Q641	8-729-207-56	TRANSISTOR RN1402	
Q642	8-729-207-56	TRANSISTOR RN1402	
Q643	8-729-207-56	TRANSISTOR RN1402	
Q644	8-729-207-56	TRANSISTOR RN1402	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R101	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R102	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R103	1-216-056-00	METAL GLAZE 2K 5% 1/10W	
R104	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R105	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R106	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R107	1-216-082-00	METAL GLAZE 24K 5% 1/10W	

Ref. No.	Part No.	Description				Remarks
R108	1-216-043-00	METAL CHIP	560	5%	1/10W	
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R110	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R111	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R112	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R114	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R115	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R116	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R117	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R118	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R119	1-216-035-00	METAL CHIP	270	5%	1/10W	
R121	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R122	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R123	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R128	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R201	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R202	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R203	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R204	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R205	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R207	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R208	1-216-043-00	METAL CHIP	560	5%	1/10W	
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R210	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R211	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R212	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R213	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R214	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R215	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R217	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R218	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R219	1-216-035-00	METAL CHIP	270	5%	1/10W	
R221	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R222	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R223	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R228	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R351	1-216-029-00	METAL CHIP	150	5%	1/10W	
R352	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R353	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R354	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W	
R355	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R356	1-216-037-00	METAL CHIP	330	5%	1/10W	
R357	1-216-041-00	METAL CHIP	470	5%	1/10W	
R358	1-216-045-00	METAL CHIP	680	5%	1/10W	
R359	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R360	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R361	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R362	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R363	1-216-029-00	METAL CHIP	150	5%	1/10W	

Ref. No.	Part No.	Description				Remarks
R364	1-216-033-00	METAL CHIP	220	5%	1/10W	
R365	1-216-029-00	METAL CHIP	150	5%	1/10W	
R366	1-216-033-00	METAL CHIP	220	5%	1/10W	
R367	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R368	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R369	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R373	1-216-037-00	METAL CHIP	330	5%	1/10W	
R374	1-216-037-00	METAL CHIP	330	5%	1/10W	
R375	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R376	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R377	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R378	1-216-025-00	METAL CHIP	100	5%	1/10W	
R379	1-216-025-00	METAL CHIP	100	5%	1/10W	
R380	1-216-025-00	METAL CHIP	100	5%	1/10W	
R381	1-216-025-00	METAL CHIP	100	5%	1/10W	
R506	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R509	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R510	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R511	1-216-033-00	METAL CHIP	220	5%	1/10W	
R512	1-216-043-00	METAL CHIP	560	5%	1/10W	
R513	1-216-033-00	METAL CHIP	220	5%	1/10W	
R514	1-216-043-00	METAL CHIP	560	5%	1/10W	
R515	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R516	1-216-074-00	METAL CHIP	11K	5%	1/10W	
R517	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R518	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R519	1-216-025-00	METAL CHIP	100	5%	1/10W	
R520	1-216-025-00	METAL CHIP	100	5%	1/10W	
⚠R521	1-215-857-11	METAL OXIDE	10	5%	1W	F
R522	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R524	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R525	1-216-001-00	METAL CHIP	10	5%	1/10W	
R526	1-216-041-00	METAL CHIP	470	5%	1/10W	
R527	1-216-041-00	METAL CHIP	470	5%	1/10W	
R528	1-216-041-00	METAL CHIP	470	5%	1/10W	
R529	1-216-041-00	METAL CHIP	470	5%	1/10W	
R601	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R602	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R603	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R605	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R606	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R607	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R609	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R610	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R611	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R612	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R613	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R615	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remarks
R616	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R617	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R618	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R619	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R620	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R621	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R622	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R623	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R624	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R625	1-216-043-00	METAL CHIP	560	5%	1/10W	
R626	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R627	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R628	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R629	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R630	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R631	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R632	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R633	1-216-025-00	METAL CHIP	100	5%	1/10W	
R634	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R635	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R636	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R637	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R638	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R639	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R640	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R641	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R642	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R643	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R644	1-216-025-00	METAL CHIP	100	5%	1/10W	
R645	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R646	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R647	1-216-025-00	METAL CHIP	100	5%	1/10W	
R648	1-216-025-00	METAL CHIP	100	5%	1/10W	
R649	1-216-025-00	METAL CHIP	100	5%	1/10W	
R650	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R651	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R652	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R653	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R654	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R655	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R656	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R661	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R662	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R663	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R664	1-216-045-00	METAL CHIP	680	5%	1/10W	
R665	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R666	1-216-045-00	METAL CHIP	680	5%	1/10W	
R667	1-216-025-00	METAL CHIP	100	5%	1/10W	
R668	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R669	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R670	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R671	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R672	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R673	1-216-080-00	METAL CHIP	20K	5%	1/10W	
R674	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R675	1-216-080-00	METAL CHIP	20K	5%	1/10W	
R676	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R677	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R678	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R679	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R680	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R681	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R682	1-216-025-00	METAL CHIP	100	5%	1/10W	
R683	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R684	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R685	1-216-025-00	METAL CHIP	100	5%	1/10W	
R686	1-216-025-00	METAL CHIP	100	5%	1/10W	
R687	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R689	1-216-025-00	METAL CHIP	100	5%	1/10W	
R690	1-216-025-00	METAL CHIP	100	5%	1/10W	
R691	1-216-025-00	METAL CHIP	100	5%	1/10W	
R692	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R694	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R695	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R696	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R697	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R698	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R700	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R6002	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R6003	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R6004	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R6005	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R6010	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R6011	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R6012	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R6013	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R6014	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R6016	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R6017	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R6018	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R6050	1-216-025-00	METAL CHIP	100	5%	1/10W	
R6061	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R6062	1-216-035-00	METAL CHIP	270	5%	1/10W	
R6063	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R6070	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R6071	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	

Ref. No.	Part No.	Description			Remarks
		< VARIABLE RESISTOR >			
RV101	1-241-136-11	RES, ADJ, CARBON 10K			
RV201	1-241-136-11	RES, ADJ, CARBON 10K			
		< SWITCH >			
S902	1-570-101-61	SWITCH, KEY BOARD (CD SYNCHRO)			
S903	1-554-303-21	SWITCH, TACTILE (DOLBY NR)			
S904	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)			
S905	1-554-303-21	SWITCH, TACTILE (COUNTER RESET)			
S906	1-554-303-21	SWITCH, TACTILE (DISPLAY A/B)			
S907	1-554-303-21	SWITCH, TACTILE (DIRECTION MODE)			
S908	1-554-303-21	SWITCH, TACTILE (▮▮ PAUSE)(DECK B)			
S909	1-554-303-21	SWITCH, TACTILE (○ MUTE)(DECK B)			
S910	1-554-303-21	SWITCH, TACTILE (▶▶(AMS))(DECK A)			
S911	1-554-303-21	SWITCH, TACTILE (◀◀(AMS))(DECK A)			
S912	1-554-303-21	SWITCH, TACTILE (▶▶(AMS))(DECK B)			
S913	1-554-303-21	SWITCH, TACTILE (◀◀(AMS))(DECK B)			
S914	1-554-303-21	SWITCH, TACTILE (•REC)(DECK B)			
S915	1-554-303-21	SWITCH, TACTILE (▷)(DECK B)			
S916	1-554-303-21	SWITCH, TACTILE (◁)(DECK B)			
S917	1-554-303-21	SWITCH, TACTILE (■)(DECK B)			
S918	1-554-303-21	SWITCH, TACTILE (■)(DECK A)			
S919	1-554-303-21	SWITCH, TACTILE (▷)(DECK A)			
S920	1-554-303-21	SWITCH, TACTILE (◁)(DECK A)			
		< TRANSFORMER >			
⚠T501	1-423-382-11	TRANSFORMER, POWER			
		< VIBRATOR >			
X351	1-577-101-11	VIBRATOR, CERAMIC(4.19MHz)			
X601	1-577-358-21	VIBRATOR, CERAMIC(4.0MHz)			

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* A-2006-399-A MD-A BOARD, COMPLETE(RA12A)(DECK A)

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Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C72	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V

Ref. No.	Part No.	Description			Remarks
		< JACK >			
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNJ72	1-580-411-11	SOCKET, CONNECTOR 4P			
		< CONNECTOR >			
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC31A	8-759-106-02	IC uPC4570G2			
		< JUMPER RESISTOR >			
JR1	1-216-295-00	METAL CHIP	0	5%	1/10W
JR51	1-216-296-00	METAL CHIP	0	5%	1/8W
JR52	1-216-296-00	METAL CHIP	0	5%	1/8W
JR53	1-216-296-00	METAL CHIP	0	5%	1/8W
JR54	1-216-296-00	METAL CHIP	0	5%	1/8W
		< TRANSISTOR >			
Q71A	8-729-602-36	TRANSISTOR 2SA1602			
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11A	1-241-627-11	RES, ADJ, CARBON 1K			
RV21A	1-241-627-11	RES, ADJ, CARBON 1K			
RV71A	1-241-630-11	RES, ADJ, CARBON 10K			
RV72A	1-241-630-11	RES, ADJ, CARBON 10K			

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Ref. No.	Part No.	Description			Remarks
*	1-634-841-14	SW-A BOARD			
		**********			
	3-343-419-01	HOLDER (S SENSER A)			
		< CONNECTOR >			
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P			
		< IC >			
IC81A	8-719-710-03	DIODE	NJL5165K-B		
		< RESISTOR >			
R84	1-249-417-11	CARBON	1K	5%	1/4W F
R85	1-249-408-11	CARBON	180	5%	1/4W F
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)			
S82	1-571-281-21	SWITCH, LEAF (CrO2 DET)			
S86	1-571-281-21	SWITCH, LEAF (HALF DET)			

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Ref. No.	Part No.	Description			Remarks
*	A-2006-401-A	MD-B BOARD, COMPLETE(RB12A)(DECK B)			
		**********************************			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C33	1-124-234-00	ELECT	22uF	20%	16V
C51	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C52	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C53	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C54	1-136-601-11	FILM	0.01uF	5%	630V
C56	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C57	1-164-346-11	CERAMIC CHIP	1uF		16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
C80	1-124-234-00	ELECT	22uF	20%	16V
C81	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C82	1-136-157-00	FILM	0.022uF	5%	50V
C83	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C84	1-136-478-11	FILM	470PF	5%	630V
C85	1-136-433-11	FILM	100PF	5%	630V
C86	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V

Ref. No.	Part No.	Description			Remarks
C87	1-136-273-91	FILM	75PF	5%	630V
C88	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C89	1-124-234-00	ELECT	22uF	20%	16V
C90	1-107-045-00	MICA	3.9PF		500V
C91	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C92	1-136-157-00	FILM	0.022uF	5%	50V
C93	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C94	1-136-478-11	FILM	470PF	5%	630V
C95	1-136-433-11	FILM	100PF	5%	630V
C96	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C97	1-136-273-91	FILM	75PF	5%	630V
C98	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C99	1-164-005-11	CERAMIC CHIP	0.47uF		25V
		< CONNECTOR >			
* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P			
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P			
		< DIODE >			
D31B	8-719-016-74	DIODE 1SS352			
		< IC >			
IC31B	8-759-106-02	IC uPC4570G2			
IC81B	8-759-106-56	IC uPC1297CA			
		< COIL >			
L81	1-410-780-11	INDUCTOR	27mH		
L91	1-410-780-11	INDUCTOR	27mH		
		< TRANSISTOR >			
Q51B	8-729-808-01	TRANSISTOR	2SD1622-S		
Q52B	8-729-808-01	TRANSISTOR	2SD1622-S		
Q53B	8-729-808-01	TRANSISTOR	2SD1622-S		
Q71B	8-729-216-22	TRANSISTOR	2SA1162		
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W
R52	1-216-097-00	METAL CHIP	100K	5%	1/10W

MD-B SW-B

Ref. No.	Part No.	Description	Remarks
R53	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R54	1-216-309-00	METAL CHIP 5.6 5% 1/10W	
R55	1-216-309-00	METAL CHIP 5.6 5% 1/10W	
R57	1-216-298-00	METAL CHIP 2.2 5% 1/10W	
R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R72	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R73	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R74	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R81	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R82	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R83	1-216-001-00	METAL CHIP 10 5% 1/10W	
R84	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R85	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R91	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R92	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R93	1-216-001-00	METAL CHIP 10 5% 1/10W	
R94	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R95	1-216-075-00	METAL CHIP 12K 5% 1/10W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV11B	1-241-627-11	RES, ADJ, CARBON 1K	
RV21B	1-241-627-11	RES, ADJ, CARBON 1K	
RV71B	1-241-630-11	RES, ADJ, CARBON 10K	
RV72B	1-241-630-11	RES, ADJ, CARBON 10K	
RV81B	1-241-122-11	RES, ADJ, CARBON 22K	
RV91B	1-241-122-11	RES, ADJ, CARBON 22K	

< RELAY >

Ref. No.	Part No.	Description	Remarks
RY31B	1-515-913-11	RELAY	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
T51	1-406-417-11	COIL, BIAS OSCILLATION	
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
* TP81	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	

****

Ref. No.	Part No.	Description	Remarks
*	1-634-841-14	SW-B BOARD **********	
	3-343-419-01	HOLDER (S SENSER A)	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P	

< IC >

Ref. No.	Part No.	Description	Remarks
IC81B	8-719-710-03	DIODE NJL5165K-B	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R81	1-249-414-11	CARBON 560 5% 1/4W	F
R82	1-247-818-11	CARBON 300 5% 1/4W	
R83	1-247-834-11	CARBON 1.3K 5% 1/4W	
R84	1-249-417-11	CARBON 1K 5% 1/4W	F
R85	1-249-408-11	CARBON 180 5% 1/4W	F

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82	1-571-281-21	SWITCH, LEAF (CrO2 DET)	
S83	1-571-281-21	SWITCH, LEAF (METAL DET)	
S84	1-571-281-21	SWITCH, LEAF (ERASE PROOF(SIDE A))	
S85	1-571-281-21	SWITCH, LEAF (ERASE PROOF(SIDE B))	
S86	1-571-281-21	SWITCH, LEAF (HALF DET)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remarks
64	1-690-880-41	LEAD (WITH CONNECTOR)	
68	1-590-902-11	WIRE, FLAT TYPE (9 CORE)	
69	1-696-748-11	WIRE (FLAT TYPE) (19 CORE)	
117	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
HP101	A-2003-837-F	BASE ASSY, HEAD(DECK A)	
HRP101	A-2003-838-A	BASE ASSY, HEAD(DECK B)	
M101A	X-3363-501-1	MOTOR(REEL MOTOR) ASSY(DECK A)	
M101B	X-3363-501-1	MOTOR(REEL MOTOR) ASSY(DECK B)	
M102A	X-3359-417-1	MOTOR(CAPSTAN MOTOR) ASSY(DECK A)	
M102B	X-3359-417-1	MOTOR(CAPSTAN MOTOR) ASSY(DECK B)	

****

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remarks
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-621-255-15	SCREW +PTT 2X3 (S)	
#4	7-621-770-67	SCREW +PTT 2.6X6 (S)	
#5	7-627-556-08	SCREW +P 2.6X2.8	
#6	7-621-775-00	SCREW +B 2.6X3	
#8	7-621-849-00	SCREW, TAPPING	

Sony Corporation
Audio Group

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Published by Audio Corporate Planning Group

TA-H4800

173

SERVICE MANUAL

AEP Model
E Model
Australian Model
Tourist Model

TA-H4800 is the Power amplifier section in MHC-4800/FH-E8X.

SPECIFICATIONS

For Europe	
Continuous RMS power output	60 + 60 watts (6 ohms at 1 kHz, DIN) 70 + 70 watts (6 ohms at 1 kHz, 5% THD)
Music power output	140 + 140 watts (6 ohms at 1 kHz, 10% THD)
For Australia	
Continuous RMS power output	70 + 70 watts (16 ohms at 1 kHz, 5% THD)
Peak music power output	800 watts (4 speaker driven)
For other countries	
Peak music power output	800 watts (4 speaker driven)
Continuous RMS power output	70 + 70 watts (16 ohms at 1 kHz, 5% THD)
Inputs	MIX MIC (minijack) sensitivity: 1 mV, impedance: 600 ohms
Outputs	HEADPHONES (stereo minijack) accepts headphones of 8 ohms or more SPEAKER accepts speakers of 6 to 16 ohms SURROUND SPEAKER (phono jacks) (Model for Europe) accepts speakers of 16 ohms (Model for other countries) accepts speakers of 8 to 16 ohms

General

Power requirements	European model: 220 V — 230 V, 50/60 Hz Model for other countries: 110 — 120 V, or 220 — 240 V AC ajustable, 50/60 Hz
Power consumption	European model: 180 watts Model for other countries: 210 watts
Dimensions	Approx. 225 x 390 x 280 mm (w/h/d) ($8^7/_8$ x $15^3/_8$ x $11^1/_8$ in.) incl. projecting parts and.controls
Mass	Approx. 13 kg (28 lb 11 oz)
Supplied accessories	Remote Commander (1) (RM-S380) Sony SUM-3 (NS) batteries (2) AM loop antenna (1) FM antenna (1) AC power cord (2) Flat cord (1) Speaker cord (2) (except for Europe)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

MICROFILM

POWER AMPLIFIER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

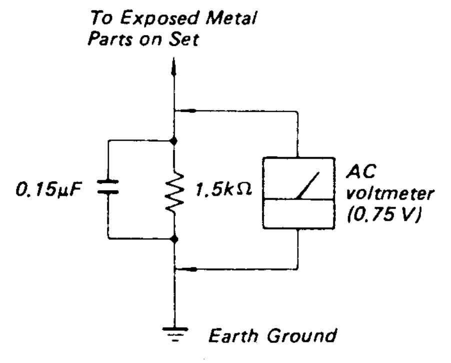

Fig. A. Using an AC voltmeter to check AC leakage.

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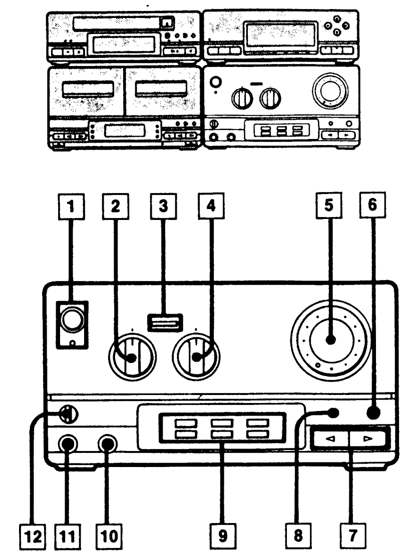
3-2. Chassis Assembly 20

4. ELECTRICAL PARTS LIST 21

SAFETY-RELATED COMPONENT WARNING!!

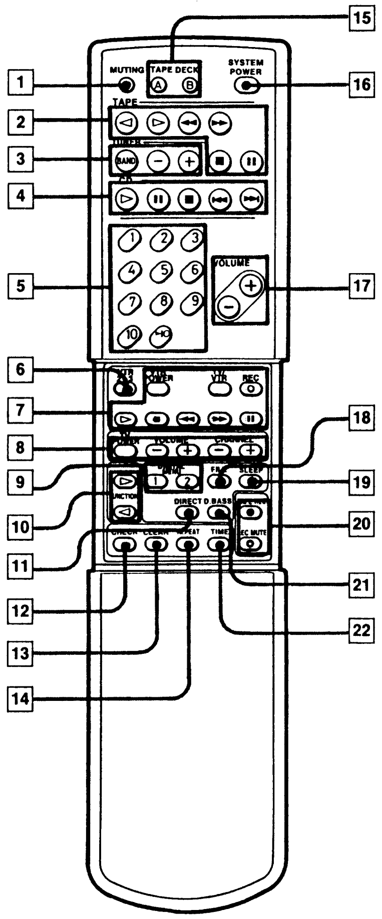
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

F


1
2
3
4
5
6
12
11
10
9
8
7

30

G


MUTING
TAPE DECK
SYSTEM POWER
TAPE
BAND
VOLUME
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

SECTION 1
GENERAL

This section is extracted from instruction manual.

Parts Identification

Refer to the pages indicated in ( ) for use of the buttons.

Amplifier Section F

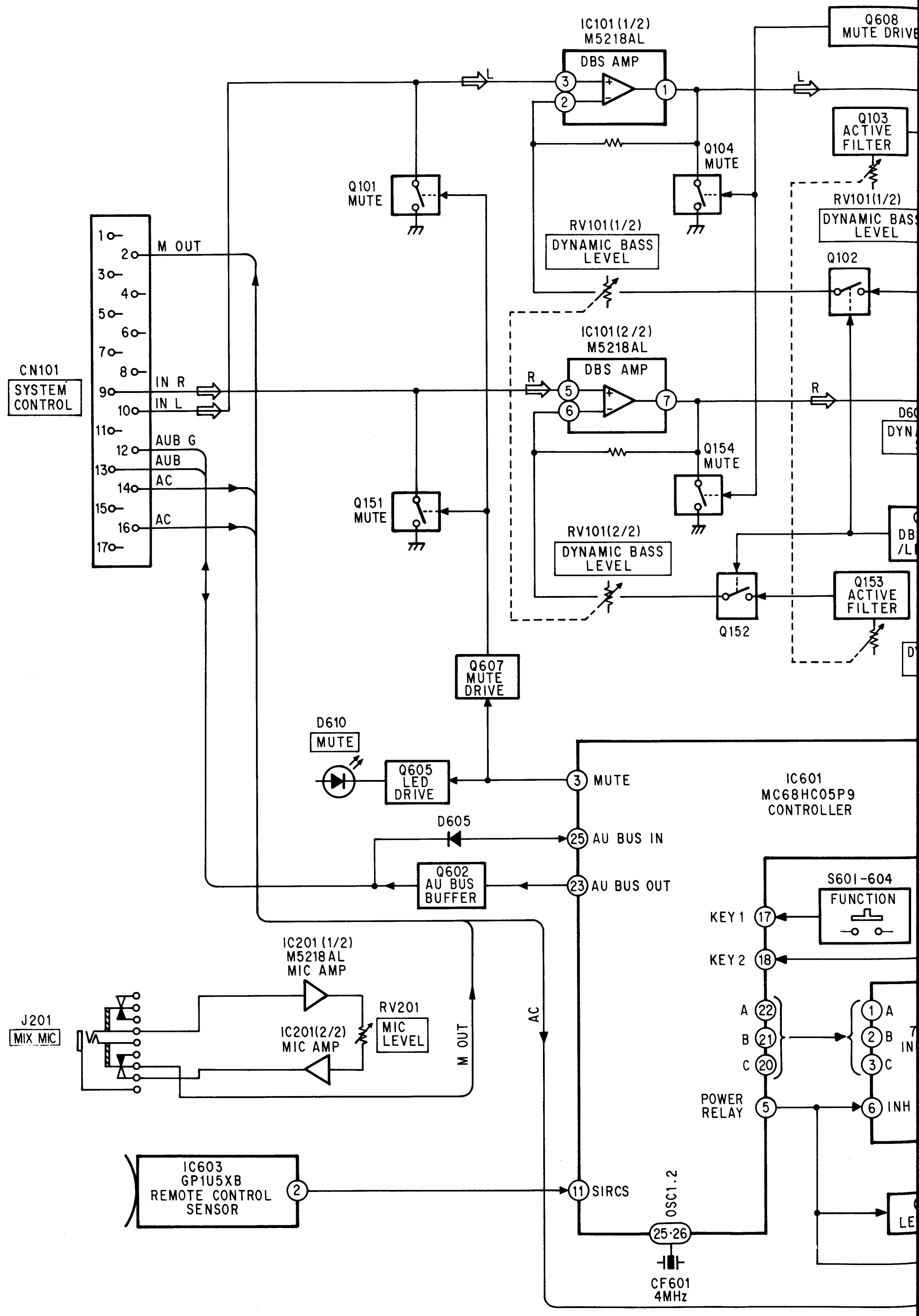
1 SYSTEM POWER button and ON/STANDBY indicator
The indicator remains lit as long as the AC power cord is connected to the wall outlet.
2 FREQUENCY control (36)
3 DYNAMIC BASS SYSTEM button and indicator (36)
4 LEVEL (Bass level) control (36)
5 VOLUME control (36)
6 Remote control sensor
7 FUNCTION ◁/▷ buttons (22, 68, 114)
8 MUTING button and indicator (36)
9 FUNCTION INDICATOR
10 HEADPHONES jack (stereo minijack) (36)
11 MIX MIC (microphone) input jack (minijack) (114)
12 MIC (microphone) LEVEL control (114)

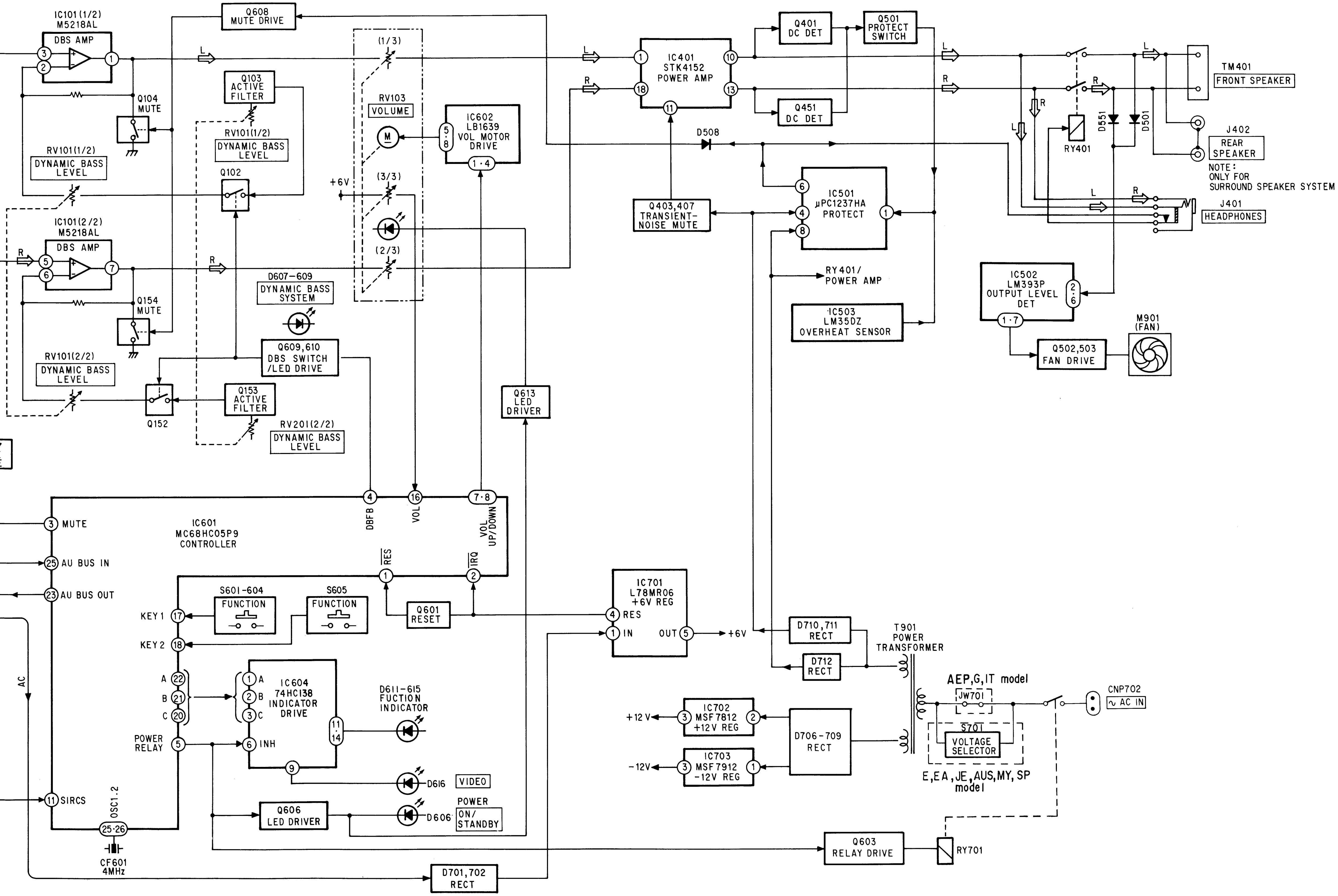
Remote Commander G

1 MUTING button (36)
2 Cassette deck operation buttons
3 Tuner operation buttons
  BAND button
  –/+ buttons
4 CD player operation buttons
5 Tuner/CD player numeric buttons (40, 60)
6 VTR 2/3 selector
  Select VTR 2 for Sony 8 mm format VCRs.
  Select VTR 3 for Sony VHS format VCRs.
7 VTR operation buttons
  (for Sony VCRs only)
8 TV operation buttons
  (for Sony TVs only)
9 DIGITAL MENU 1/2 (Digital Sound Menu) buttons (96)
10 FUNCTION ◁/▷ buttons
11 DIRECT button (96)
12 CHECK button (52)
13 CLEAR button (48, 52)
14 REPEAT button (44)
15 TAPE DECK A/B buttons (62)
16 SYSTEM POWER button
17 VOLUME +/– buttons (36)
18 P. FILE button (102)
19 SLEEP button (112)
20 Recording operation buttons
  TAPE REC ● button (68)
  REC MUTE ○ button (70)
21 D. BASS button (36)
22 TIME button (42)

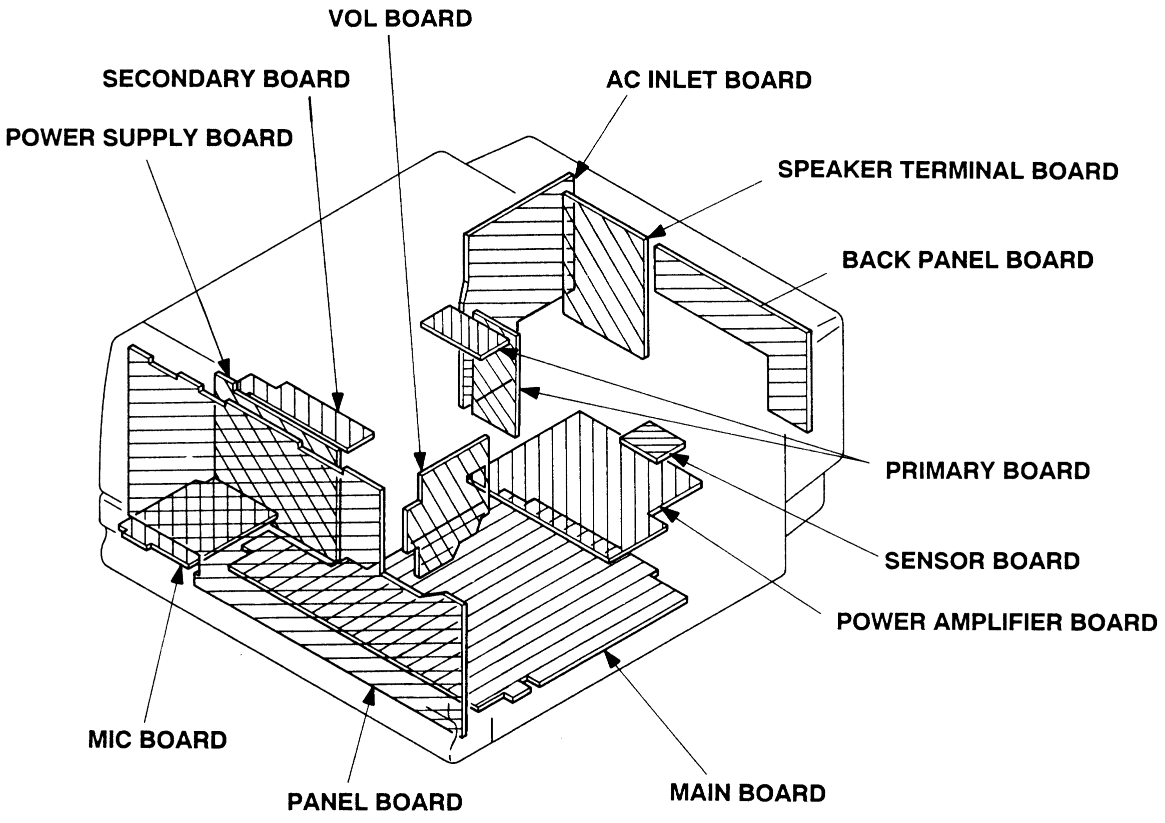
SECTION 2
DIAGRAMS

2-1. BLOCK DAIAGRAMS


IC101 (1/2)
M5218AL
DBS AMP
Q608
MUTE DRIVE
Q103
ACTIVE FILTER
Q104
MUTE
Q101
MUTE
RV101(1/2)
DYNAMIC BASS LEVEL
Q102
CN101
SYSTEM CONTROL
M OUT
IN R
IN L
AUB G
AUB
AC
IC101(2/2)
M5218AL
DBS AMP
Q154
MUTE
Q151
MUTE
RV101(2/2)
DYNAMIC BASS LEVEL
Q152
Q153
ACTIVE FILTER
Q607
MUTE DRIVE
D610
MUTE
Q605
LED DRIVE
D605
Q602
AU BUS BUFFER
MUTE
AU BUS IN
AU BUS OUT
IC601
MC68HC05P9
CONTROLLER
S601-604
FUNCTION
KEY 1
KEY 2
IC201 (1/2)
M5218AL
MIC AMP
IC201(2/2)
MIC AMP
RV201
MIC LEVEL
J201
MIX MIC
M OUT
AC
POWER RELAY
INH
IC603
GP1U5XB
REMOTE CONTROL SENSOR
SIRCS
OSC1.2
CF601
4MHz
L
R


IC101(1/2)
M5218AL
DBS AMP
Q104
MUTE
RV101(1/2)
DYNAMIC BASS LEVEL
Q608
MUTE DRIVE
Q103
ACTIVE FILTER
RV101(1/2)
DYNAMIC BASS LEVEL
Q102
(1/3)
RV103
VOLUME
(3/3)
(2/3)
+6V
IC602
LB1639
VOL MOTOR DRIVE
IC101(2/2)
M5218AL
DBS AMP
Q154
MUTE
RV101(2/2)
DYNAMIC BASS LEVEL
D607–609
DYNAMIC BASS SYSTEM
Q609,610
DBS SWITCH /LED DRIVE
Q152
Q153
ACTIVE FILTER
RV201(2/2)
DYNAMIC BASS LEVEL
Q613
LED DRIVER
IC401
STK4152
POWER AMP
D508
Q403,407
TRANSIENT-NOISE MUTE
Q401
DC DET
Q451
DC DET
Q501
PROTECT SWITCH
IC501
μPC1237HA
PROTECT
RY401/
POWER AMP
IC503
LM35DZ
OVERHEAT SENSOR
RY401
D551
D501
TM401
FRONT SPEAKER
J402
REAR SPEAKER
NOTE:
ONLY FOR
SURROUND SPEAKER SYSTEM
J401
HEADPHONES
IC502
LM393P
OUTPUT LEVEL DET
Q502,503
FAN DRIVE
M901
(FAN)
L
R
IC601
MC68HC05P9
CONTROLLER
MUTE
AU BUS IN
AU BUS OUT
DBFB
VOL
VOL UP/DOWN
RES
IRQ
KEY 1
KEY 2
S601–604
FUNCTION
S605
FUNCTION
Q601
RESET
A
B
C
POWER RELAY
IC604
74HC138
INDICATOR DRIVE
INH
D611–615
FUCTION INDICATOR
D616
VIDEO
Q606
LED DRIVER
D606
POWER
ON/STANDBY
SIRCS
OSC1.2
CF601
4MHz
AC
D701,702
RECT
IC701
L78MR06
+6V REG
RES
IN
OUT
+6V
D710,711
RECT
D712
RECT
T901
POWER TRANSFORMER
IC702
MSF7812
+12V REG
+12V
IC703
MSF7912
−12V REG
−12V
D706–709
RECT
AEP,G,IT model
JW701
S701
VOLTAGE SELECTOR
E,EA,JE,AUS,MY,SP model
CNP702
~ AC IN
Q603
RELAY DRIVE
RY701

2-2. CIRCUT BOARDS LOCATION


VOL BOARD
SECONDARY BOARD
AC INLET BOARD
POWER SUPPLY BOARD
SPEAKER TERMINAL BOARD
BACK PANEL BOARD
PRIMARY BOARD
SENSOR BOARD
POWER AMPLIFIER BOARD
MIC BOARD
PANEL BOARD
MAIN BOARD

- **Semiconductor Location**

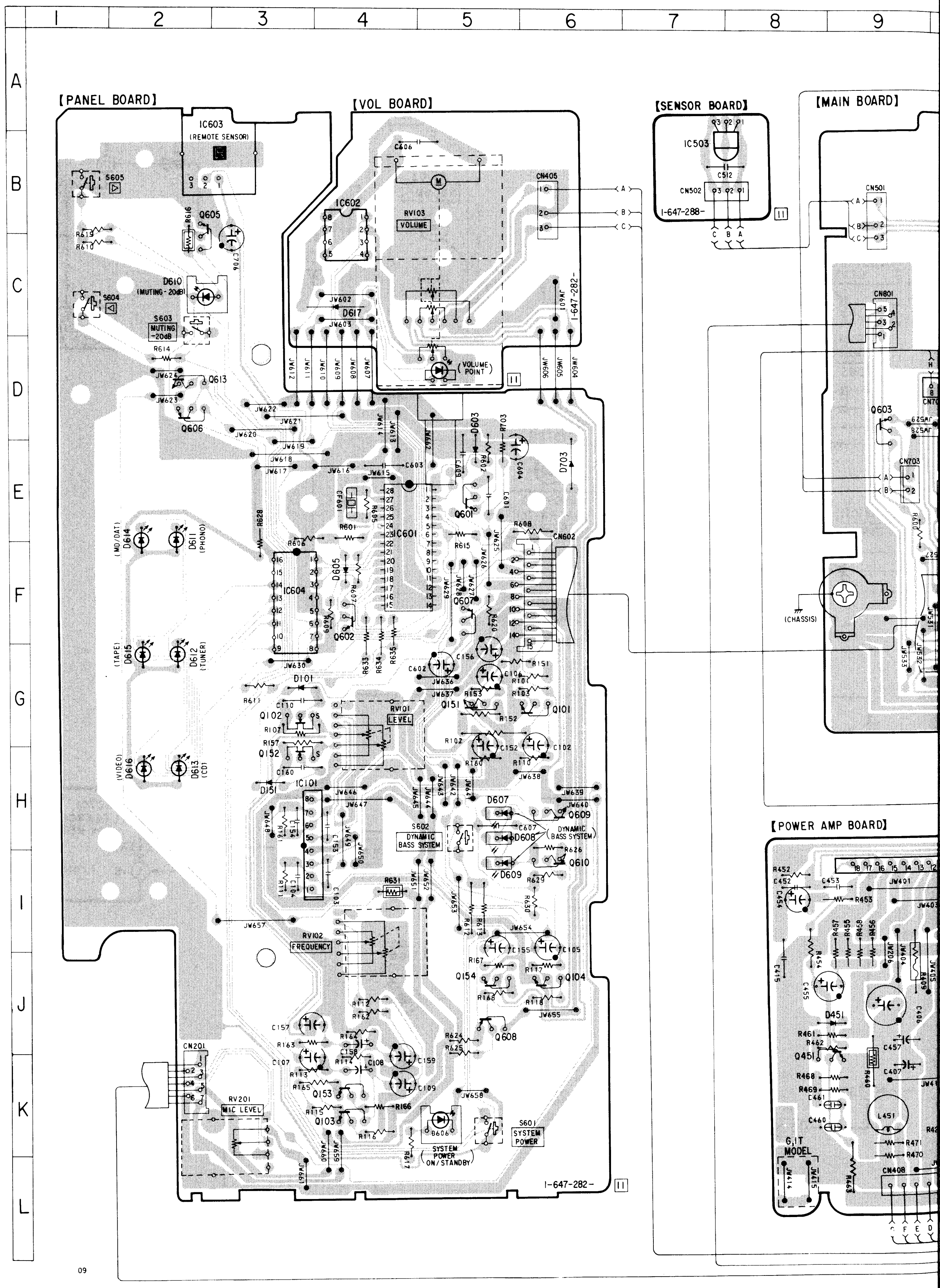
Ref. No.	Location	Ref. No.	Location
D101	G-3	IC101	H-3
D151	H-3	IC201	J-20
D401	J-10	IC401	I-9
D402	D-12	IC501	D-11
D451	J-8	IC502	B-12
D501	C-13	IC503	B-7
D502	C-12	IC601	E-4
D503	B-13	IC602	B-4
D504	B-12	IC603	B-2
D505	B-12	IC604	F-3
D506	B-11	IC701	F-10
D507	D-11	IC702	E-12
D508	G-11	IC703	G-12
D551	C-13		
D603	E-5	Q101	G-5
D605	F-4	Q102	G-3
D606	K-4	Q103	K-4
D607	H-5	Q104	J-6
D608	H-5	Q151	G-5
D609	I-5	Q152	H-3
D610	C-2	Q153	K-4
D611	E-2	Q154	J-5
D612	G-2	Q401	K-10
D613	H-2	Q402	K-10
D614	E-2	Q403	K-10
D615	G-2	Q451	K-8
D616	H-2	Q501	C-11
D617	C-4	Q502	C-11
D701	E-10	Q503	B-11
D702	E-10	Q601	E-5
D703	E-6	Q602	F-4
D704	D-23	Q603	D-9
D706	E-17	Q605	B-2
D707	E-17	Q606	D-2
D708	E-18	Q607	F-5
D709	E-18	Q608	J-5
D710	E-17	Q609	H-6
D711	E-17	Q610	I-6
D712	D-17	Q613	D-2

Note on Printed Wiring Boards:

Note:

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the component side.
- ░ : Pattern on the side which is seen.

2-3. PRINTED WIRING BOARDS • Ref to page 16,17 for Semiconductor Lead Layout.


1
2
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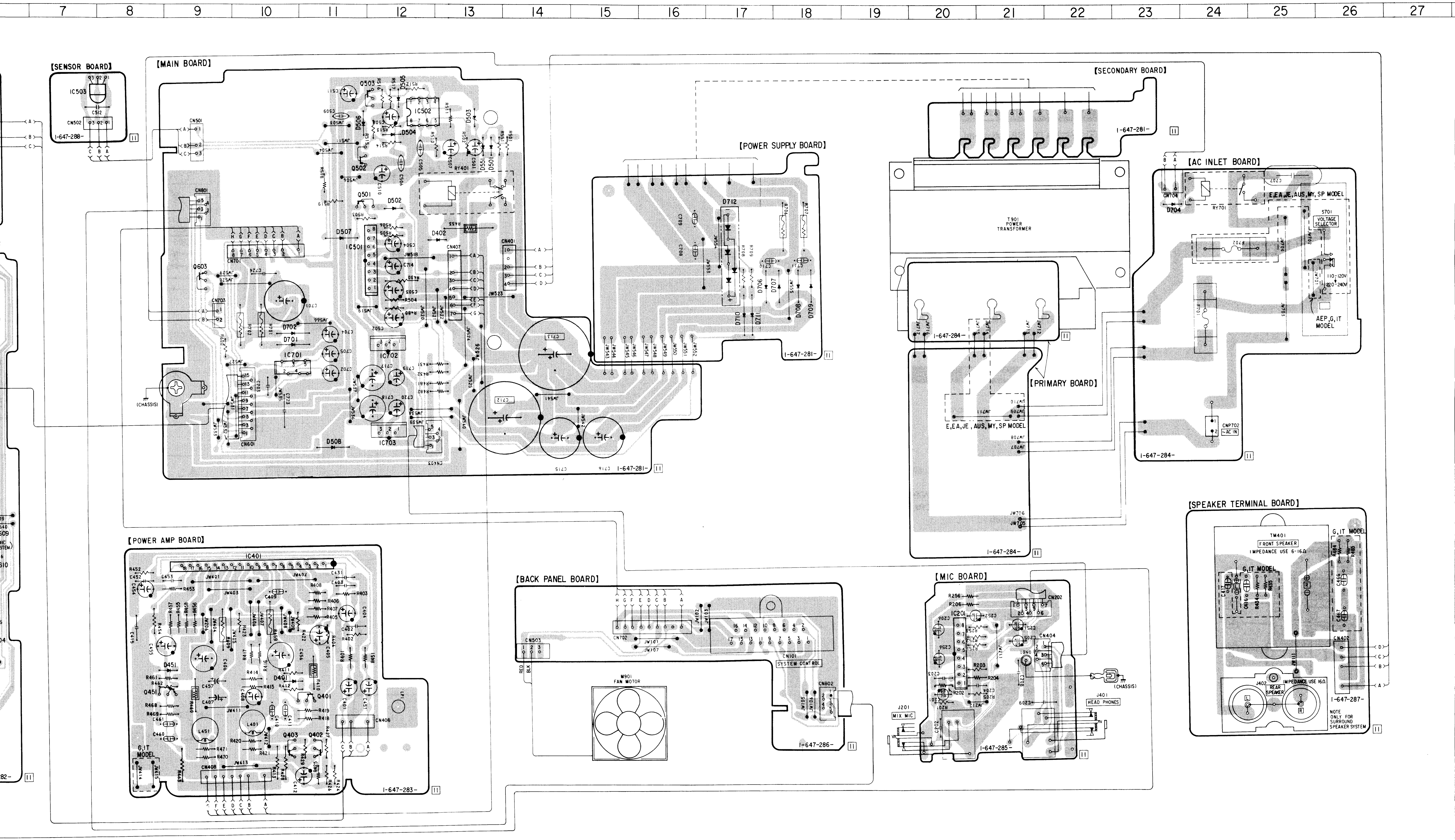
A
B
C
D
E
F
G
H
I
J
K
L
[PANEL BOARD]
[VOL BOARD]
[SENSOR BOARD]
[MAIN BOARD]
[POWER AMP BOARD]
IC603 (REMOTE SENSOR)
S605
S604
D610 (MUTING -20dB)
S603 MUTING -20dB
Q605
Q606
Q613
IC602
RV103 VOLUME
D617
D616 VOLUME POINT
CN405
1-647-282-
IC503
C512
CN502
1-647-288-
CN501
CN801
Q603
CN703
(CHASSIS)
IC601
IC604
Q601
Q602
Q607
CN602
D703
D614 (MD/DAT)
D611 (PHONO)
D615 (TAPE)
D612 (TUNER)
D616 (VIDEO)
D613 (CD)
D101
Q101
Q102
Q151
Q152
RV101 LEVEL
IC101
D151
D607
D608
D609
Q609
Q610
S602 DYNAMIC BASS SYSTEM
DYNAMIC (BASS SYSTEM)
RV102 FREQUENCY
Q154
Q104
Q608
Q153
Q103
CN201
RV201 MIC LEVEL
D606
SYSTEM POWER ON/STANDBY
S601 SYSTEM POWER
1-647-282-
D451
Q451
L451
G,T MODEL
CN408
09

conductor Lead Layout.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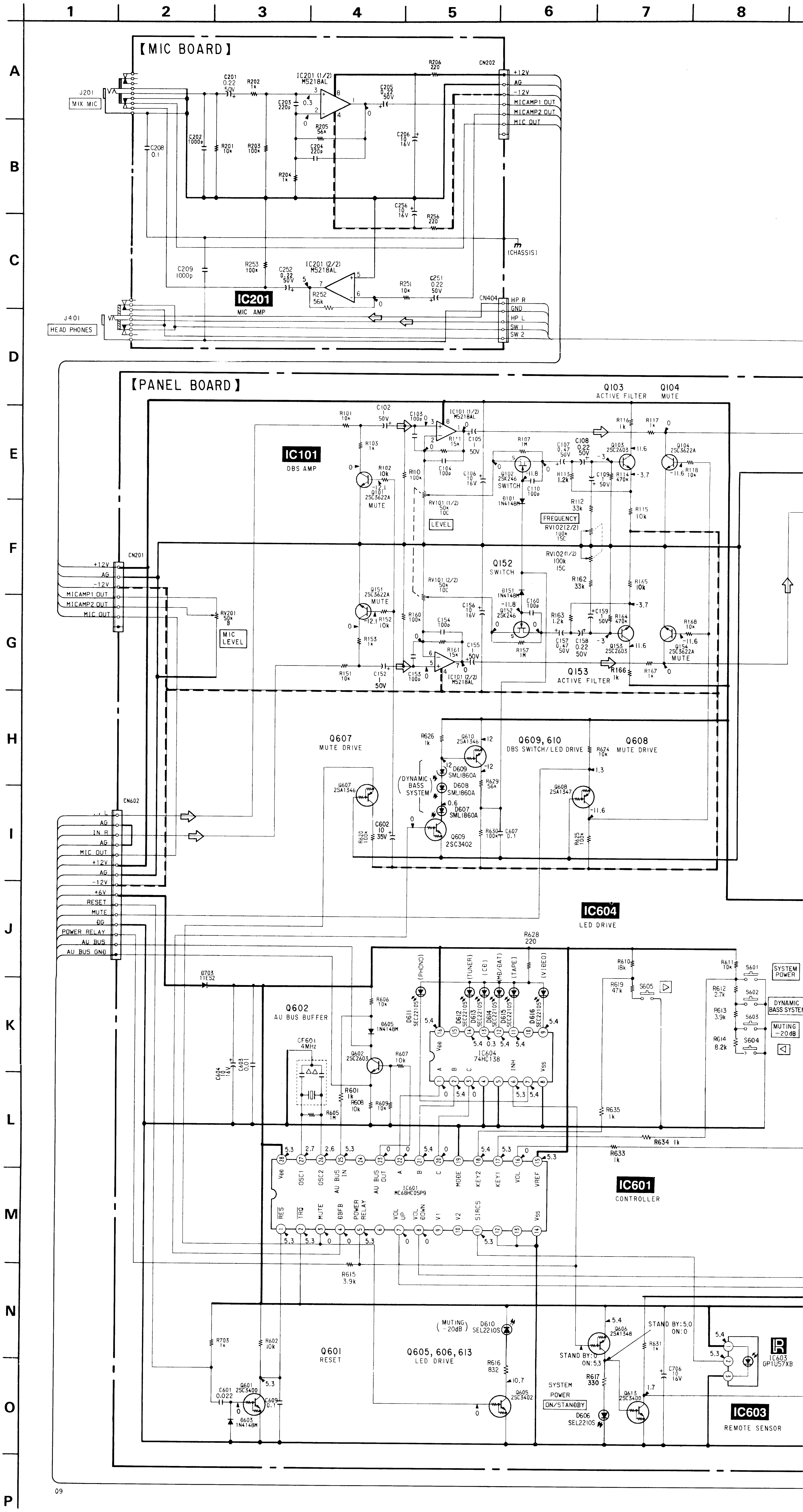
26
27
[SENSOR BOARD]
1-647-288-
[MAIN BOARD]
1-647-281-
[POWER SUPPLY BOARD]
1-647-281-
[SECONDARY BOARD]
1-647-281-
[AC INLET BOARD]
E,EA,JE,AUS,MY,SP MODEL
VOLTAGE SELECTOR
110-120V
220-240V
AEP,G,IT MODEL
CNP702 ~AC IN
1-647-284-
T901 POWER TRANSFORMER
[PRIMARY BOARD]
E,EA,JE,AUS,MY,SP MODEL
1-647-284-
[POWER AMP BOARD]
G,IT MODEL
1-647-283-
[BACK PANEL BOARD]
SYSTEM CONTROL
M901 FAN MOTOR
1-647-286-
[MIC BOARD]
J201 MIX MIC
J401 HEAD PHONES
(CHASSIS)
1-647-285-
[SPEAKER TERMINAL BOARD]
TM401
FRONT SPEAKER
IMPEDANCE USE 6-16Ω
G,IT MODEL
J402
REAR SPEAKER
IMPEDANCE USE 16Ω
NOTE ONLY FOR SURROUND SPEAKER SYSTEM
1-647-287-
(CHASSIS)

2-4. SCHEMATIC DIAGRAMS • Ref to page 16,17 and 18 for Semiconductor Lead Layout and IC Block Diagrams.


1
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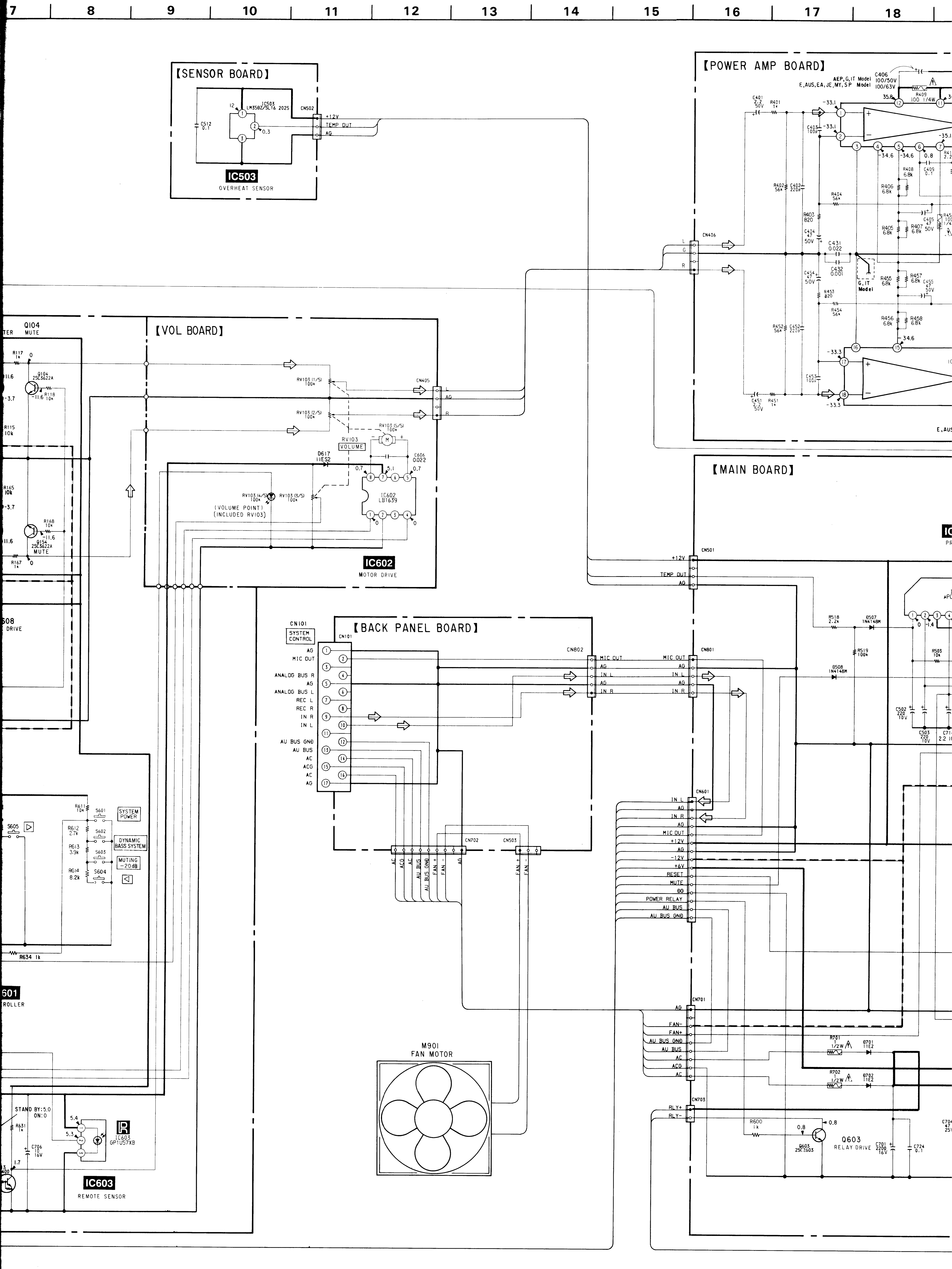
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
【MIC BOARD】
J201
MIX MIC
IC201 (1/2) M5218AL
IC201 (2/2) M5218AL
IC201
MIC AMP
CN202
+12V
AG
-12V
MICAMP1 OUT
MICAMP2 OUT
MIC OUT
(CHASSIS)
J401
HEAD PHONES
CN404
HP R
GND
HP L
SW 1
SW 2
【PANEL BOARD】
IC101
DBS AMP
IC101 (1/2) M5218AL
IC101 (2/2) M5218AL
Q101 2SC3622A MUTE
Q102 2SK246 SWITCH
Q103 ACTIVE FILTER
Q104 MUTE
Q151 2SC3622A MUTE
Q152 SWITCH
Q153 ACTIVE FILTER
Q154 2SC3622A MUTE
LEVEL
FREQUENCY
RV201 MIC LEVEL
CN201
CN602
Q607 MUTE DRIVE
Q609, 610 DBS SWITCH/LED DRIVE
Q608 MUTE DRIVE
(DYNAMIC BASS SYSTEM)
D609 SML1860A
D608 SML1860A
D607 SML1860A
Q609 2SC3402
IC604
LED DRIVE
IC604 74HC138
(PHONO)
(TUNER)
(CD)
(MD/DAT)
(TAPE)
(VIDEO)
Q602
AU BUS BUFFER
CF601 4MHz
IC601 MC68HC05P9
IC601
CONTROLLER
S601 SYSTEM POWER
S602 DYNAMIC BASS SYSTEM
S603 MUTING -20dB
S604
S605
Q601
RESET
Q605, 606, 613
LED DRIVE
(MUTING -20dB) D610 SEL2210S
SYSTEM POWER ON/STANDBY
D606 SEL2210S
STAND BY:0 ON:5.3
STAND BY:5.0 ON:0
IC603 GP1U57XB
IC603
REMOTE SENSOR
09

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ━━ : B+Line
- ‐‐‐‐‐ : B-Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltage are taken with a VOM (input Impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM


7
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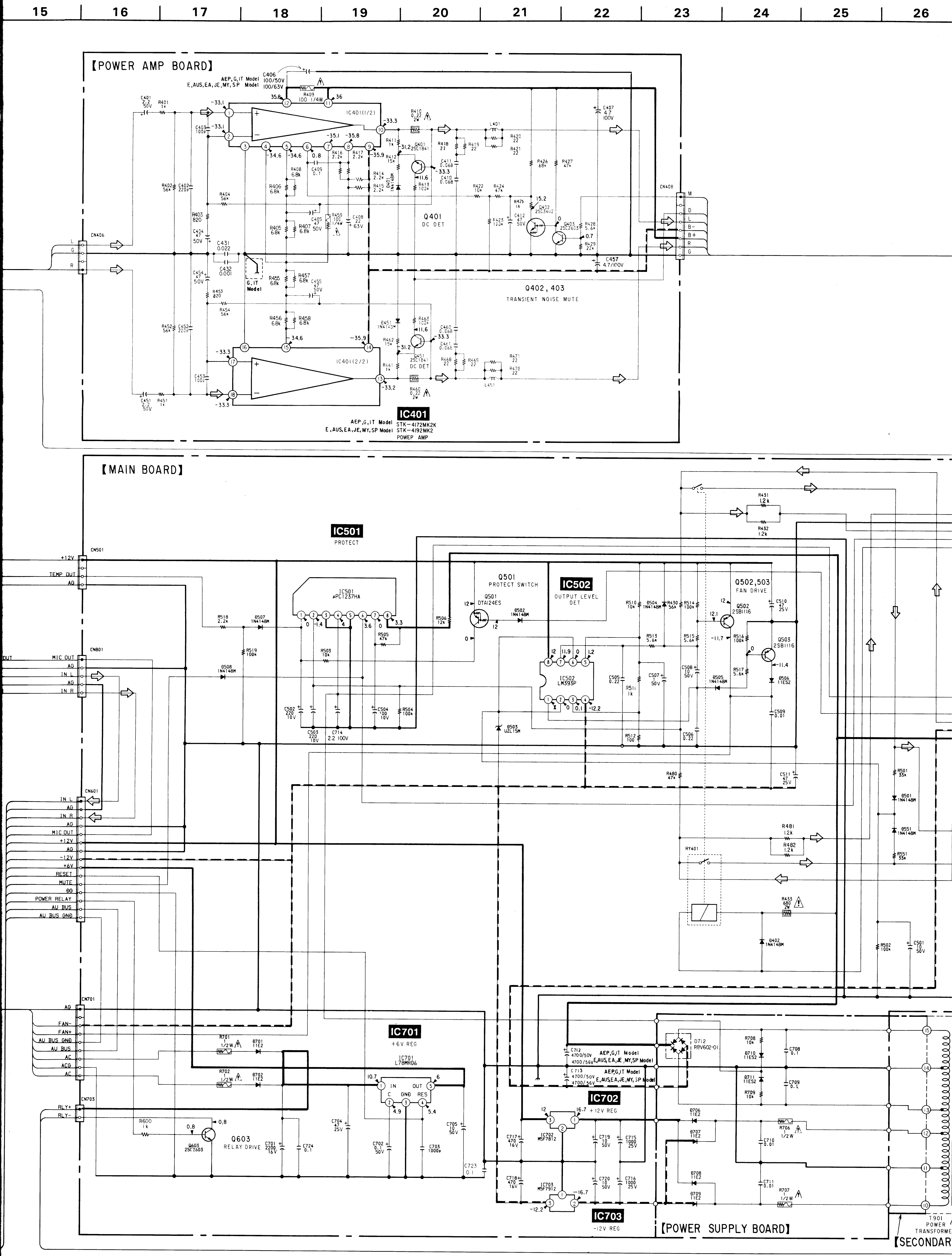
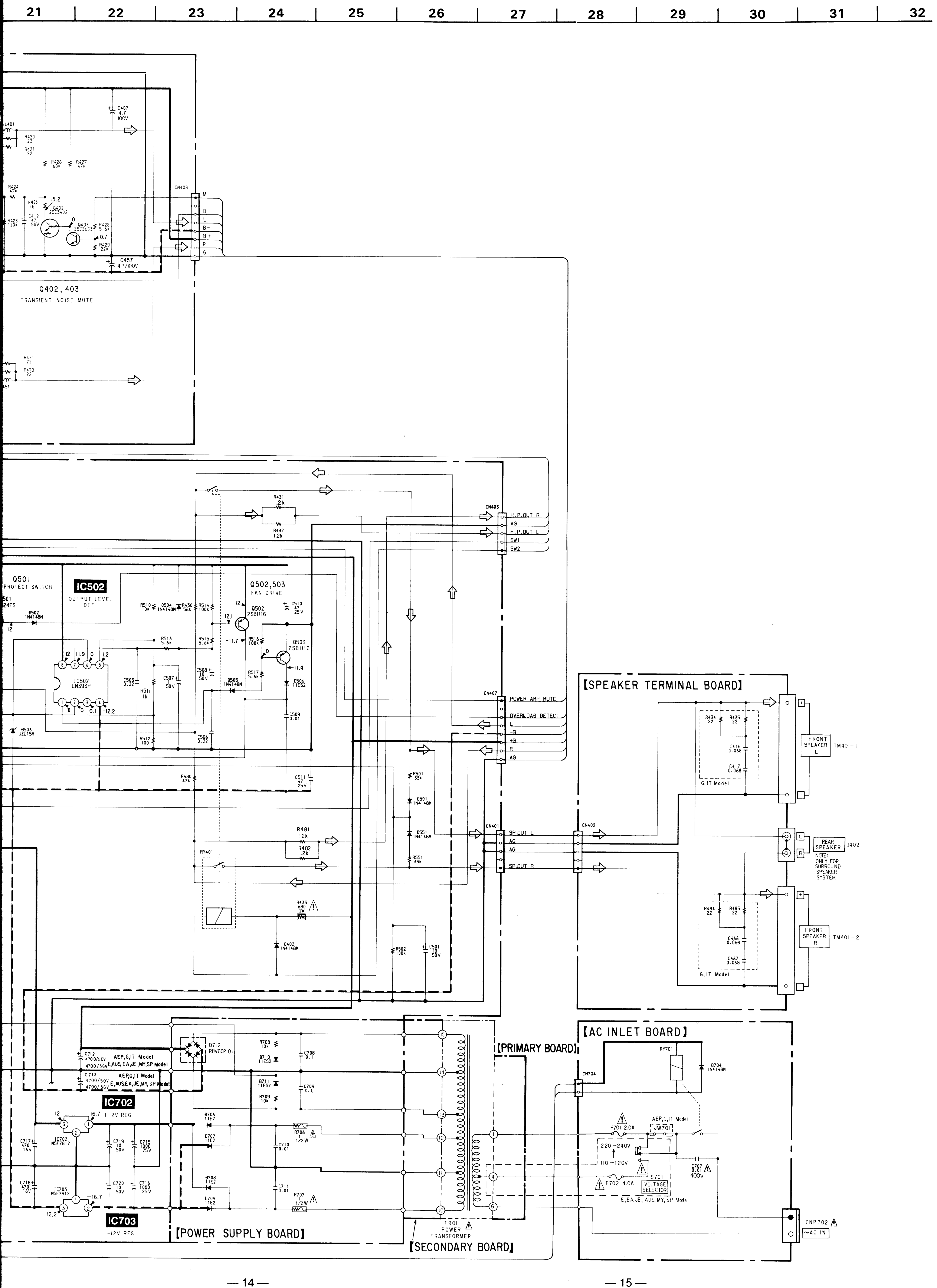
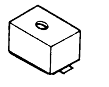
16
17
18
【SENSOR BOARD】
IC503 LM35BZ/SL16 2025
C512 0.1
CN502
+12V
TEMP OUT
AG
IC503
OVERHEAT SENSOR
【POWER AMP BOARD】
AEP,G,IT Model
E,AUS,EA,JE,MY,SP Model
C406 100/50V 100/63V
R409 100 1/4W
C401 2.2 50V
R401 1k
C403 100p
R402 56k
C402 220p
R404 56k
R403 820
C404 47 50V
C431 0.022
C432 0.001
G,IT Model
R405 6.8k
R406 6.8k
R407 6.8k
R408 6.8k
C409 0.1
C405 47 50V
C454 47 50V
R453 820
R454 56k
R455 6.8k
R457 6.8k
C455 47 50V
R456 6.8k
R458 6.8k
R452 56k
C452 220p
C453 100p
C451 2.2 50V
R451 1k
CN406
L
G
R
E,AUS
【VOL BOARD】
Q104 MUTE
R117 1k
Q104 2SC3622A
R118 10k
R115 10k
R165 10k
R168 10k
Q154 2SC3622A MUTE
R167 1k
RV103 (1/5) 100k
RV103 (2/5) 100k
RV103 (5/5) 100k
RV103 VOLUME
RV103 (4/5) 100k
RV103 (3/5) 100k
(VOLUME POINT) (INCLUDED RV103)
D617 11ES2
C606 0.022
IC602 LB1639
CN405
L
AG
R
IC602
MOTOR DRIVE
【MAIN BOARD】
CN501
+12V
TEMP OUT
AG
R518 2.2k
D507 1N4148M
R519 100k
D508 1N4148M
R503 10k
C502 220 10V
C503 220 10V
【BACK PANEL BOARD】
CN101 SYSTEM CONTROL
CN101
AG
MIC OUT
ANALOG BUS R
AG
ANALOG BUS L
REC L
REC R
IN R
IN L
AU BUS GND
AU BUS
AC
ACG
AC
AG
CN802
MIC OUT
AG
IN L
AG
IN R
CN801
MIC OUT
AG
IN L
AG
IN R
CN601
IN L
AG
IN R
AG
MIC OUT
+12V
AG
-12V
+6V
RESET
MUTE
DG
POWER RELAY
AU BUS
AU BUS GND
CN702
CN503
AG
ACG
AC
AU BUS
AU BUS GND
FAN+
FAN-
AG
FAN+
FAN-
M901
FAN MOTOR
CN701
AG
FAN-
FAN+
AU BUS GND
AU BUS
AC
ACG
AC
R701 1 1/2W
D701 11E2
R702 1 1/2W
D702 11E2
CN703
RLY+
RLY-
R600 1k
Q603 2SC2603
Q603 RELAY DRIVE
C701 2200 16V
C724 0.1
S605
R611 10k
S601
SYSTEM POWER
R612 2.7k
S602
DYNAMIC BASS SYSTEM
R613 3.9k
S603
MUTING -20dB
R614 8.2k
S604
R634 1k
STAND BY:5.0 ON:0
R631 1k
C706 10 16V
IC603 GP1U57XB
IC603
REMOTE SENSOR


15
16
17
18
19
20
21
22
23
24
25
26
【POWER AMP BOARD】
AEP,G,IT Model
E,AUS,EA,JE,MY,SP Model
C406 100/50V 100/63V
R409 100 1/4W
IC401(1/2)
IC401(2/2)
R410 0.22 2W
L401
C407 4.7 100V
Q401 2SC1841
Q401 DC DET
Q402 2SC3402
Q403 2SC2603
Q402, 403 TRANSIENT NOISE MUTE
Q451 2SC1841 DC DET
D401 1N4148M
D451 1N4148M
CN406
CN408
C457 4.7/100V
G,IT Model
L451
R460 0.22 2W
IC401
AEP,G,IT Model STK-4172MK2K
E,AUS,EA,JE,MY,SP Model STK-4192MK2
POWEP AMP
【MAIN BOARD】
IC501
PROTECT
IC501 µPC1237HA
Q501 PROTECT SWITCH
Q501 DTA124ES
IC502
OUTPUT LEVEL DET
IC502 LM393P
Q502,503 FAN DRIVE
Q502 2SB1116
Q503 2SB1116
D503 UZL15M
CN501
+12V
TEMP OUT
AG
CN801
MIC OUT
IN L
IN R
CN601
-12V
+6V
RESET
MUTE
DG
POWER RELAY
AU BUS
AU BUS GND
CN701
FAN-
FAN+
AC
ACG
CN703
RLY+
RLY-
R431 1.2k
R432 1.2k
R481 1.2k
R482 1.2k
RY401
R433 680 2W
D402 1N4148M
R701 1 1/2W
R702 1 1/2W
D701 11E2
D702 11E2
IC701
+6V REG
IC701 L78MR06
IN OUT
C GND RES
Q603 RELAY DRIVE
Q603 2SC2603
C701 2200 16V
D712 RBV602-01
C712 4700/50V 4700/56V AEP,G,IT Model E,AUS,EA,JE,MY,SP Model
C713 4700/50V 4700/56V AEP,G,IT Model E,AUS,EA,JE,MY,SP Model
IC702
+12V REG
IC702 M5F7812
IC703 M5F7912
IC703
-12V REG
R706 1 1/2W
R707 1 1/2W
【POWER SUPPLY BOARD】
T901 POWER TRANSFORME
【SECONDAR

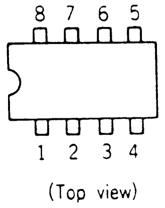

21
22
23
24
25
26
27
28
29
30
31
32
C407 4.7 100V
L401
R420 22
R421 22
R426 68k
R427 47k
R424 47k
R425 1k
15.2
Q402 2SC3402
C412 47 50V
R423 120k
0
Q403 2SC2603
R428 5.6k
0.7
R429 22k
C457 4.7/100V
CN408
M
D
L
B-
B+
R
G
Q402, 403
TRANSIENT NOISE MUTE
R471 22
R470 22
R431 1.2k
R432 1.2k
CN403
H.P.OUT R
AG
H.P.OUT L
SW1
SW2
Q501
PROTECT SWITCH
D501 24ES
D502 1N4148M
12
IC502
OUTPUT LEVEL DET
R510 10k
D504 1N4148M
R430 56k
R514 100k
Q502,503
FAN DRIVE
12
12.1
Q502 2SB1116
C510 47 25V
R513 5.6k
R515 5.6k
-11.7
R516 100k
0
Q503 2SB1116
-11.4
12
11.9
0
1.2
IC502 LM393P
C505 0.22
R511 1k
C507 1 50V
C508 10 50V
D505 1N4148M
R517 5.6k
D506 11ES2
0
0.1
-12.2
C509 0.01
D503 UZL15M
R512 100
C506 0.22
CN407
POWER AMP MUTE
OVERLOAD DETECT
L
-B
+B
R
AG
R480 47k
C511 47 25V
R501 33k
D501 1N4148M
D551 1N4148M
R551 33k
R481 1.2k
R482 1.2k
RY401
CN401
SP OUT L
AG
AG
SP OUT R
CN402
R433 680 2W
D402 1N4148M
R502 100k
C501 10 50V
【SPEAKER TERMINAL BOARD】
R434 22
R435 22
C416 0.068
C417 0.068
G, IT Model
+
-
FRONT SPEAKER L
TM401-1
L
R
REAR SPEAKER
J402
NOTE: ONLY FOR SURROUND SPEAKER SYSTEM
R484 22
R485 22
C466 0.068
C467 0.068
G, IT Model
FRONT SPEAKER R
TM401-2
D712 RBV602-01
C712 4700/50V AEP,G,IT Model
4700/56V E,AUS,EA,JE,MY,SP Model
C713 4700/50V AEP,G,IT Model
4700/56V E,AUS,EA,JE,MY,SP Model
R708 10k
D710 11ES2
C708 0.1
D711 11ES2
C709 0.1
R709 10k
IC702
12
16.7
+12V REG
IC702 M5F7812
C717 470 16V
C719 10 50V
C715 1000 25V
D706 11E2
D707 11E2
R706 1 1/2W
C710 0.01
C718 470 16V
IC703 M5F7912
-16.7
-12.2
C720 10 50V
C716 1000 25V
D708 11E2
D709 11E2
C711 0.01
R707 1 1/2W
IC703
-12V REG
【POWER SUPPLY BOARD】
15
14
13
12
11
10
1
4
6
T901
POWER TRANSFORMER
【SECONDARY BOARD】
【PRIMARY BOARD】
【AC INLET BOARD】
RY701
D704 1N4148M
CN704
F701 2.0A
AEP,G,IT Model
JW701
220-240V
110-120V
S701
VOLTAGE SELECTOR
F702 4.0A
E,EA,JE, AUS, MY, SP Model
C707 0.01 400V
CNP702
~AC IN

2-5. SEMICONDUCTOR LEAD LAYOUT

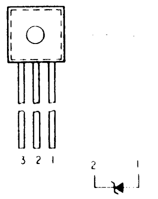
GP1U57XB



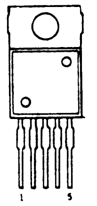
LB1639
μPC393C


8 7 6 5
1 2 3 4
(Top view)

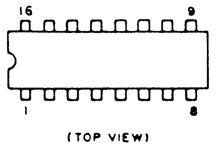
LM35DZ



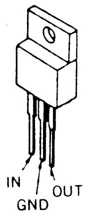
L78MR06



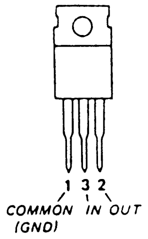
MC68HC05P9SC405649B
SN74HC138AN


16 9
1 8
(TOP VIEW)

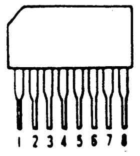
M5F7812L



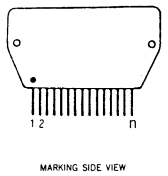
TA7912S


1 3 2
COMMON (GND)
IN
OUT

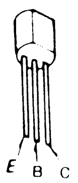
M5218AL
μPC1237HA



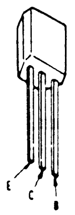
STK-4172MK2K
STK-4192MK2


1 2
n
MARKING SIDE VIEW

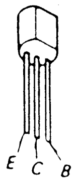
2SB1116



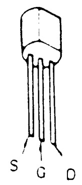
2SC2603-EF
2SC3622A-LK
DTA144WS
DTC124ES



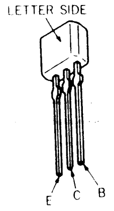
2SC1841-PAFAEA



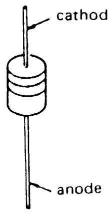
2SK246GR3



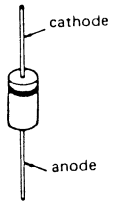
DTA124ES


LETTER SIDE
E C B

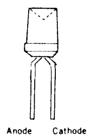
UZL-15M
11ES2


cathode
anode

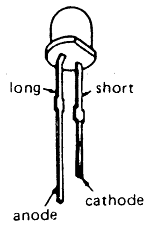
10E2
1N4148M


cathode
anode

SEL2213C-C

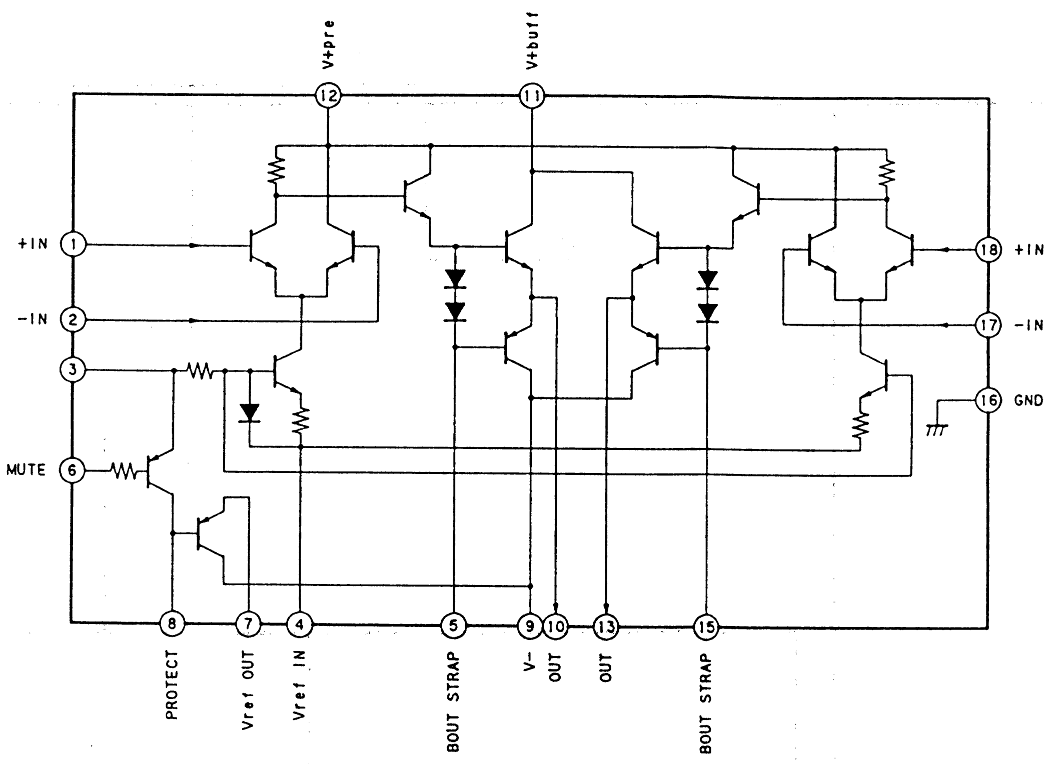

Anode
Cathode

SEL2210S-CD
SML1860A

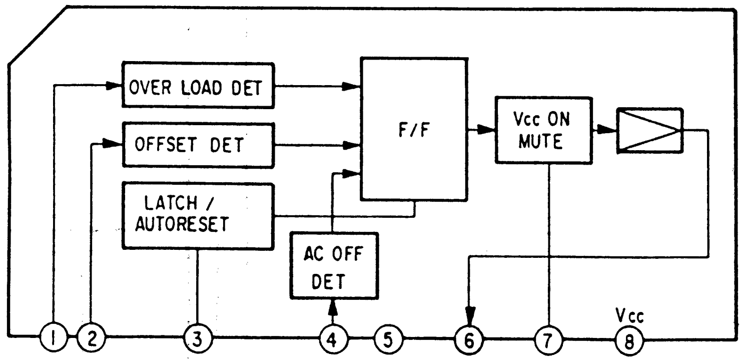

long
short
anode
cathode

• IC Block Diagrams

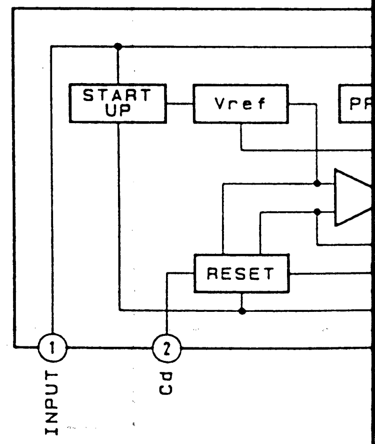
IC401 STK-4172MK2K, STK-4192MK2


V+pre
V+buff
12
11
+IN 1
−IN 2
3
MUTE 6
18 +IN
17 −IN
16 GND
8
7
4
5
9
10
13
15
PROTECT
Vref OUT
Vref IN
BOUT STRAP
V−
OUT
OUT
BOUT STRAP

IC501 μPC1237HA


OVER LOAD DET
OFFSET DET
LATCH / AUTORESET
AC OFF DET
F/F
Vcc ON MUTE
Vcc
1
2
3
4
5
6
7
8

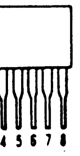
IC701 L78MR06


START UP
Vref
PF
RESET
1
2
INPUT
Cd

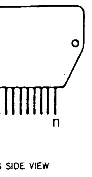
IC6

AD LAYOUT

AL
37HA



72MK2K
92MK2



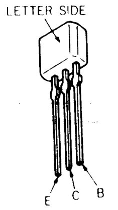
16

03-EF
22A-LK
4WS
4ES

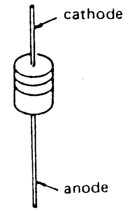
41-PAFAEA

6GR3

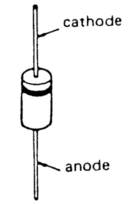
DTA124ES


LETTER SIDE
E C B

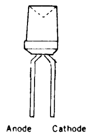
UZL-15M
11ES2


cathode
anode

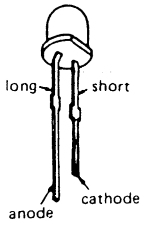
10E2
1N4148M


cathode
anode

SEL2213C-C

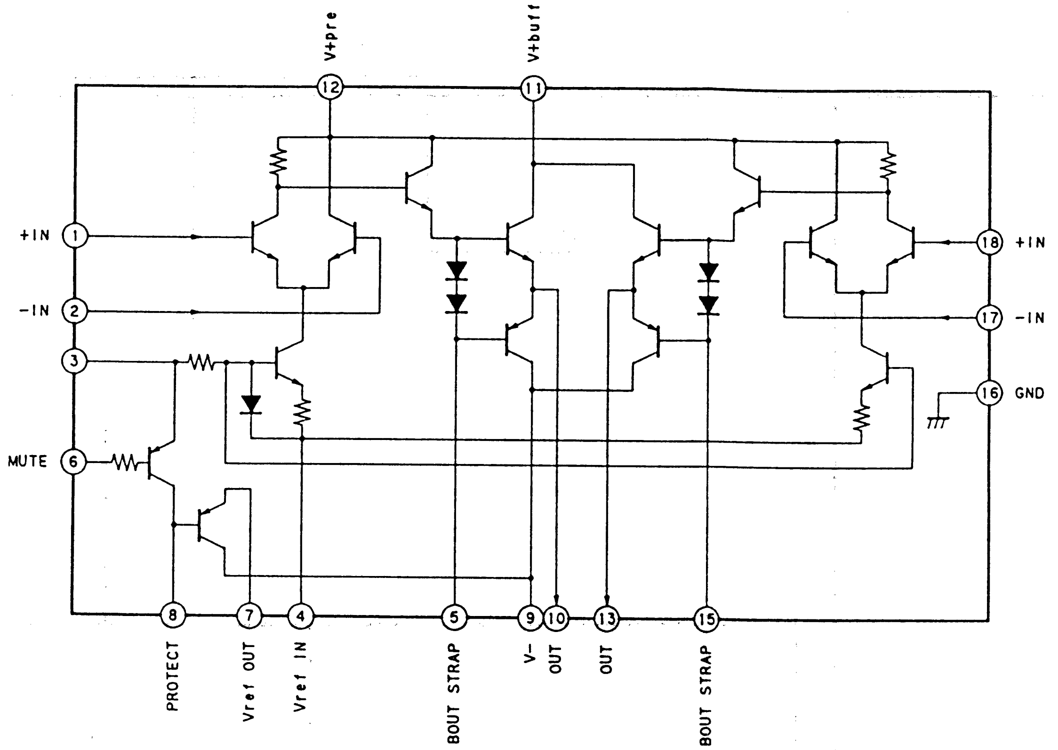

Anode
Cathode

SEL2210S-CD
SML1860A

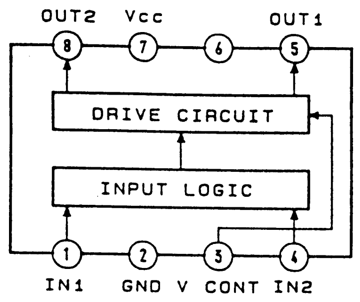

long
short
anode
cathode

• IC Block Diagrams

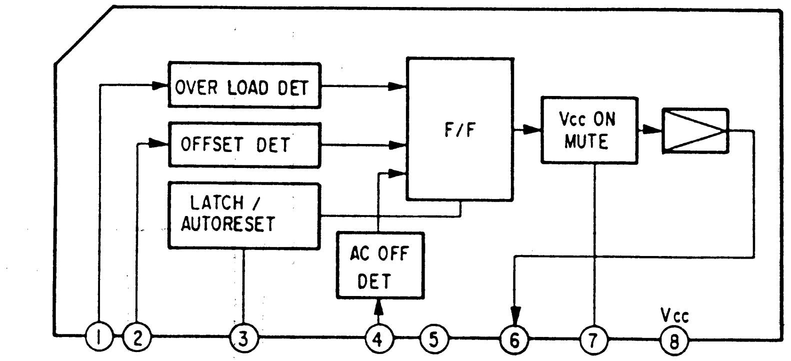
IC401 STK-4172MK2K, STK-4192MK2


V+pre
V+buff
+IN
-IN
MUTE
+IN
-IN
GND
PROTECT
Vref OUT
Vref IN
BOUT STRAP
V-
OUT
OUT
BOUT STRAP

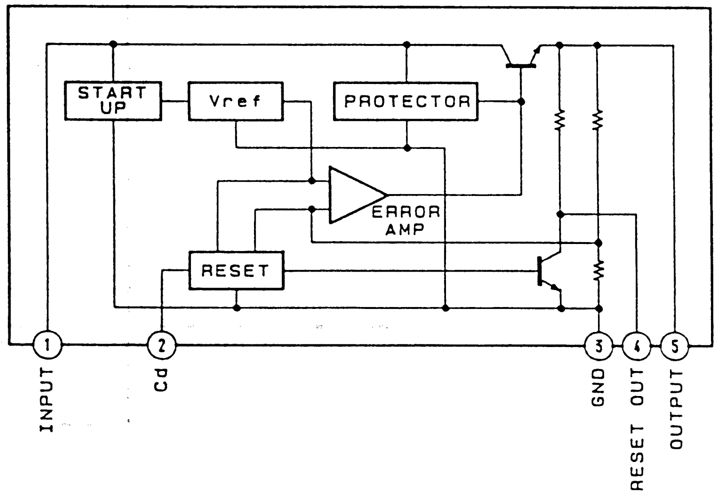
IC602 LB1639


OUT2
Vcc
OUT1
DRIVE CIRCUIT
INPUT LOGIC
IN1
GND
V CONT
IN2

IC501 μPC1237HA


OVER LOAD DET
OFFSET DET
LATCH / AUTORESET
F/F
Vcc ON MUTE
AC OFF DET
Vcc

IC701 L78MR06


START UP
Vref
PROTECTOR
ERROR AMP
RESET
INPUT
Cd
GND
RESET OUT
OUTPUT

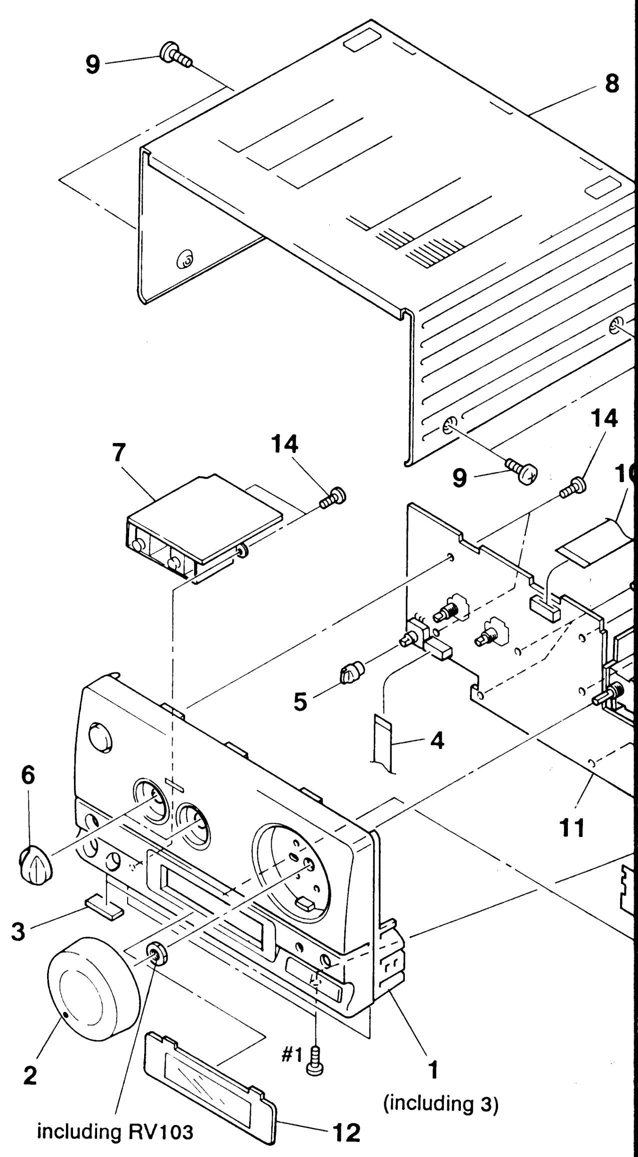
SECT
EXPLODE

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color

- Items marked " ∗
  they are seldom
  service. Some dela
  when ordering these
- The mechanical pa
  number in the ex
  supplied.
- Hardware (# mark)
  of this parts list.

3-1. CASE AND FRONT PANEL ASSEMBLIES


9
8
7
14
14
9
5
4
6
11
3
2
#1
1
(including 3)
including RV103
12

Ref. No.	Part No.	Description	Remark
1	X-4943-427-2	PANEL ASSY, FRONT (AEP, G, IT)	
	X-4943-448-2	PANEL ASSY, FRONT (E, AUS, EA, JE, MY, SP)	
2	X-4942-957-1	KNOB (VOLUME) ASSY	
3	4-930-336-31	FOOT (FELT)	
4	1-590-033-11	WIRE, FLAT TYPE (7 CORE)	
5	4-954-799-01	KNOB (MICROPHONE)	
6	4-956-577-01	KNOB (DBFB)	
∗ 7	1-647-285-11	MIC BOARD	
∗ 8	3-382-491-11	CASE	
9	3-363-099-21	SCREW (CASE 3 TP2)	

SECTION 3
EXPLODED VIEWS

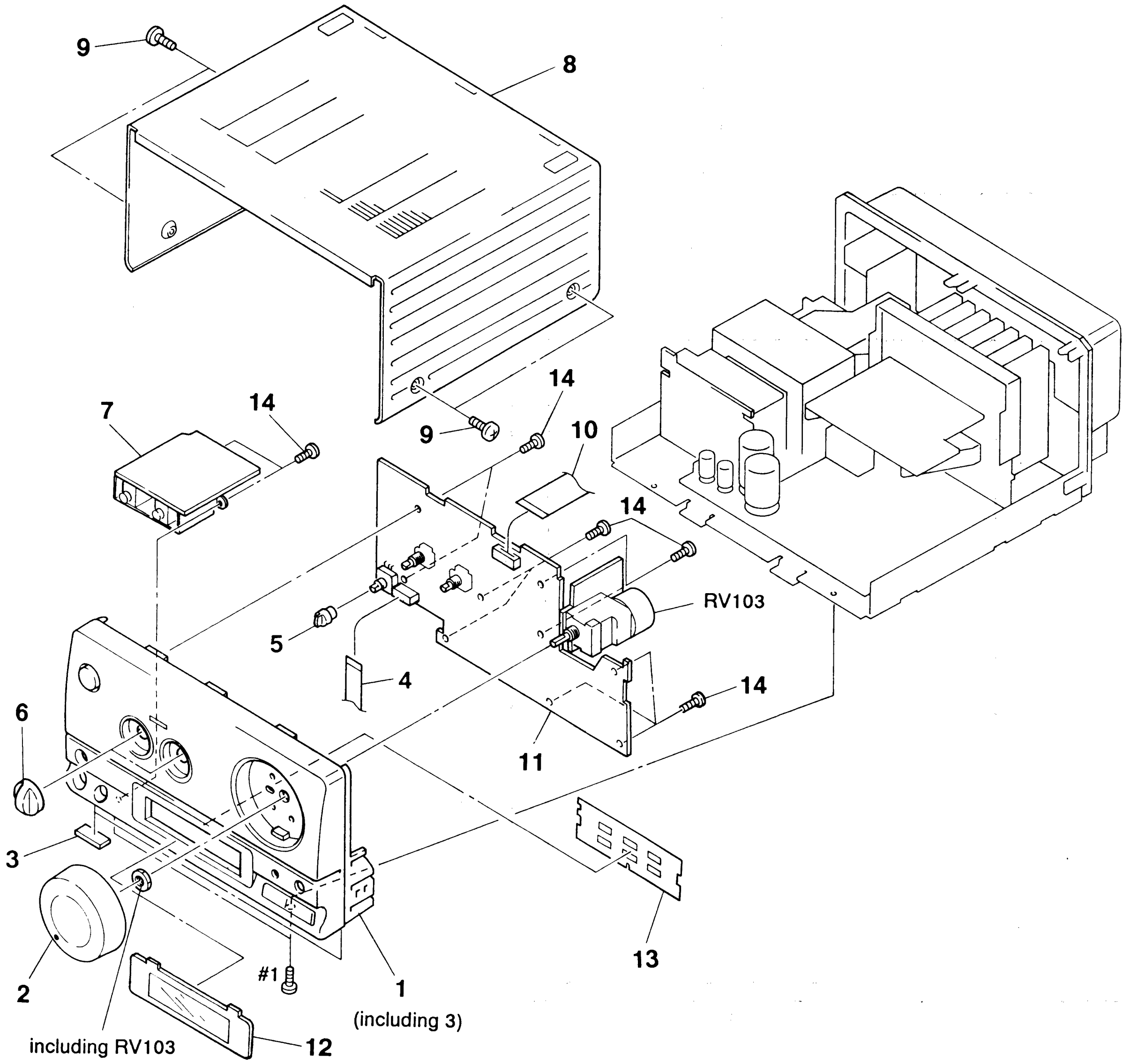
NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color

- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

- Italian, German, Australian, Sudi Arabia, Tourist, Malaysia and Singapore model is abbreviated as IT, G, AUS, EA, JE, MY and SP.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

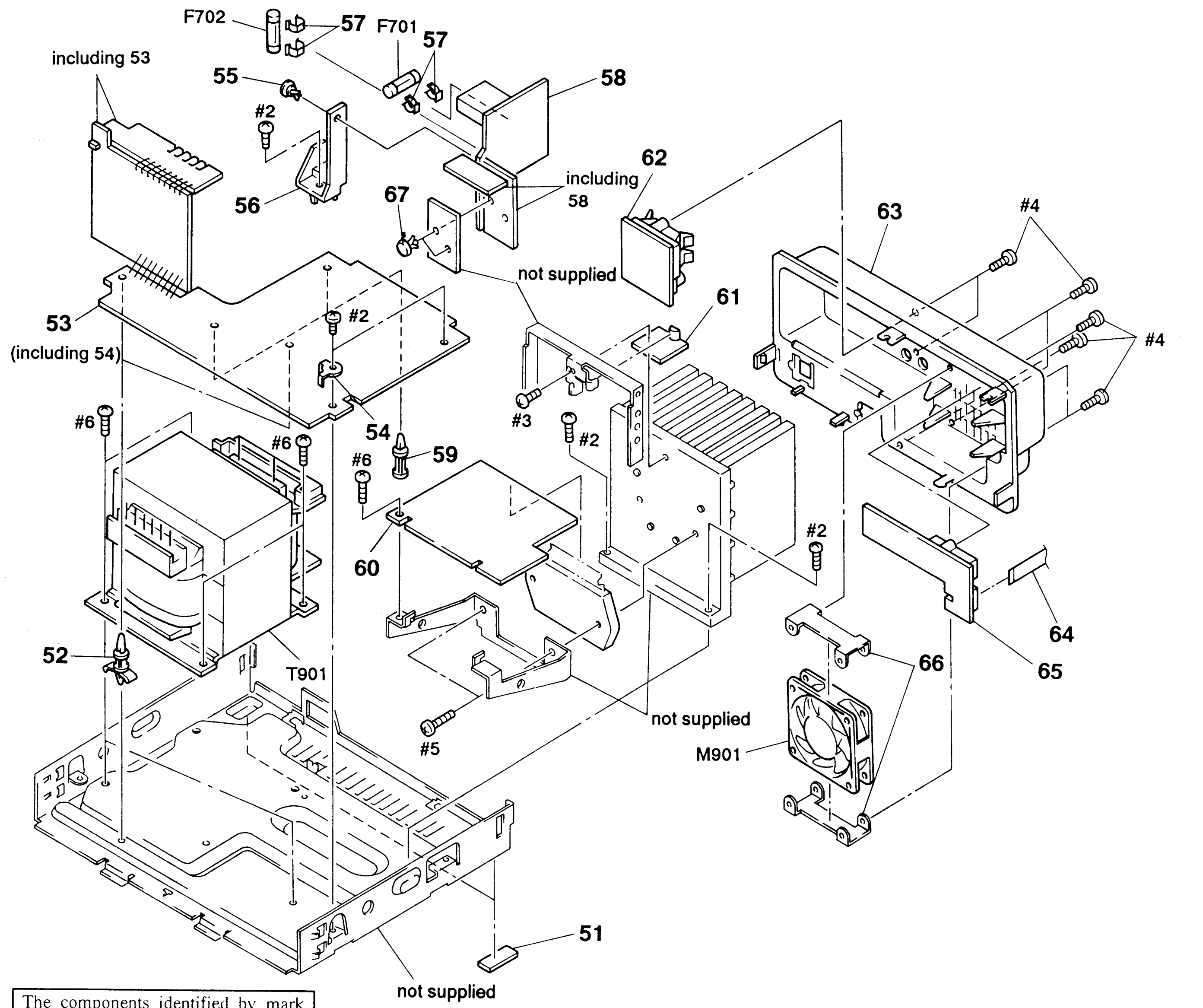
3-1. CASE AND FRONT PANEL ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-4943-427-2	PANEL ASSY, FRONT (AEP, G, IT)	
	X-4943-448-2	PANEL ASSY, FRONT (E, AUS, EA, JE, MY, SP)	
2	X-4942-957-1	KNOB (VOLUME) ASSY	
3	4-930-336-31	FOOT (FELT)	
4	1-590-033-11	WIRE, FLAT TYPE (7 CORE)	
5	4-954-799-01	KNOB (MICROPHONE)	
6	4-956-577-01	KNOB (DBFB)	
∗ 7	1-647-285-11	MIC BOARD	
∗ 8	3-382-491-11	CASE	
9	3-363-099-21	SCREW (CASE 3 TP2)	

Ref. No.	Part No.	Description	Remark
10	1-751-032-11	WIRE (FLAT TYPE) (15 CORE)	
∗ 11	A-4360-169-A	PANEL BOARD, COMPLETE (AEP, E, AUS, EA, JE, MY, SP)	
∗	A-4360-189-A	PANEL BOARD, COMPLETE (G, IT)	
12	4-957-038-01	PLATE (WINDOW), INDICATION	
13	4-957-039-01	PLATE (DISPLAY), INDICATION	
14	4-951-620-01	SCREW (2.6X8), +BVTP	
RV103	1-223-200-11	RES, VAR, CARBON 10K/100K/100K (VOLUME)	

3-2. CHASSIS ASSEMBLY



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	4-930-336-31	FOOT (FELT)	
∗ 52	4-924-098-11	HOLDER, PC BOARD	
∗ 53	A-4360-168-A	MAIN BOARD, COMPLETE (AEP)	
∗	A-4360-193-A	MAIN BOARD, COMPLETE (G, IT)	
∗	A-4360-207-A	MAIN BOARD, COMPLETE (E, AUS, EA, JE, MY, SP)	
∗ 54	4-942-204-01	PLATE, GROUND	
55	4-812-134-11	RIVET NYLON, 3.5	
∗ 56	4-954-242-01	BRACKET (IN)	
∗ 57	1-533-213-31	HOLDER FUSE	
∗ 58	1-647-284-11	AC INLET BOARD	
∗ 59	3-669-610-00	SPACER	
∗ 60	A-4360-186-A	POWER AMPLIFIER BOARD, COMPLETE (AEP)	
∗	A-4360-194-A	POWER AMPLIFIER BOARD, COMPLETE (G, IT)	
∗	A-4360-209-A	POWER AMPLIFIER BOARD, COMPLETE (E, AUS, EA, JE, MY, SP)	

Ref. No.	Part No.	Description	Remark
∗ 61	1-647-288-11	SENSOR BOARD	
∗ 62	1-647-287-11	SPEAKER TERMINAL BOARD	
∗ 63	4-954-256-31	PANEL, BACK (E, AUS, EA, JE, MY, SP)	
∗	4-954-256-41	PANEL, BACK (AEP, G, IT)	
64	1-751-023-11	WIRE (FLAT TYPE) (5 CORE)	
∗ 65	1-647-286-11	BACK PANEL BOARD	
66	4-956-816-01	BRACKET (FAN 20A)	
67	4-812-134-00	RIVET NYLON, 3.5	
⚠F701	1-532-350-00	FUSE, TIME-LAG (T4.0AL) (E, AUS, EA, JE, MY, SP)	
⚠F702	1-532-203-00	FUSE, TIME-LAG (T2.0AL)	
M901	1-541-953-11	MOTOR, DC FAN	
⚠T901	1-423-535-11	TRANSFORMER, POWER (AEP, G, IT)	
⚠	1-423-537-11	TRANSFORMER, POWER (E, AUS, EA, JE, MY, SP)	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Italian, German, Australian, Sudi Arabia, Tourist, Malaysia and Singapore model is abbreviated as IT, G, AUS, EA, JE, MY and SP.

Ref. No.	Part No.	Description	Remark
*	1-647-284-11	AC INLET BOARD **************	
*	1-533-213-11	HOLDER, FUSE	
*	1-533-213-31	HOLDER, FUSE	
		< CAPACITOR >	
⚠C707	1-161-744-00	CERAMIC 0.01uF 400V	
		< CONNECTOR >	
* CN704	1-564-517-11	PLUG, CONNECTOR 2P	
⚠CNP702	1-526-931-11	INLET, AC (~AC IN)	
		< DIODE >	
D704	8-719-987-63	DIODE 1N4148M	
		< RELAY >	
RY701	1-515-720-11	RELAY	
		< SWITCH >	
⚠S701	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E, AUS, EA, JE, MY, SP)	
**			
*	1-647-286-11	BACK PANEL BOARD ****************	
		< CONNECTOR >	
* CN101	1-580-740-11	SOCKET, CONNECTOR 17P	
**			
*	A-4360-168-A	MAIN BOARD, COMPLETE (AEP) ********************	
*	A-4360-193-A	MAIN BOARD, COMPLETE (G, IT) ********************	
*	A-4360-207-A	MAIN BOARD, COMPLETE ********************	(E, AUS, EA, JE, MY, SP)
*	4-942-204-01	PLATE, GROUND	
	4-957-043-01	HOLDER, LED	
		< CAPACITOR >	
C501	1-124-907-11	ELECT 10uF 20% 50V	
C502	1-126-923-11	ELECT 220uF 20% 10V	
C503	1-126-923-11	ELECT 220uF 20% 10V	
C504	1-124-443-00	ELECT 100uF 20% 10V	
C505	1-136-169-00	FILM 0.22uF 5% 50V	
C506	1-136-169-00	FILM 0.22uF 5% 50V	
C507	1-124-903-11	ELECT 1uF 20% 50V	
C508	1-124-907-11	ELECT 10uF 20% 50V	
C509	1-130-483-00	MYLAR 0.01uF 5% 50V	
C510	1-124-477-11	ELECT 47uF 20% 25V	
C511	1-124-477-11	ELECT 47uF 20% 25V	
C701	1-126-768-11	ELECT 2200uF 20% 16V	
C702	1-124-463-00	ELECT 0.1uF 20% 50V	
C703	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C704	1-124-477-11	ELECT 47uF 20% 25V	
C705	1-124-907-11	ELECT 10uF 20% 50V	
C712	1-126-138-11	ELECT 4700uF 20% 50V	(AEP, G, IT)
	1-126-258-11	ELECT 4700uF 20% 56V	(E, AUS, EA, JE, MY, SP)
C713	1-126-138-11	ELECT 4700uF 20% 50V	(AEP, G, IT)
	1-126-258-11	ELECT 4700uF 20% 56V	(E, AUS, EA, JE, MY, SP)
C714	1-124-925-11	ELECT 2.2uF 20% 100V	
C715	1-124-557-11	ELECT 1000uF 20% 25V	
C716	1-124-557-11	ELECT 1000uF 20% 25V	
C717	1-126-935-11	ELECT 470uF 20% 16V	
C718	1-126-935-11	ELECT 470uF 20% 16V	
C719	1-124-907-11	ELECT 10uF 20% 50V	
C720	1-124-907-11	ELECT 10uF 20% 50V	
C723	1-164-159-11	CERAMIC 0.1uF 50V	
C724	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
CN401	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
* CN403	1-568-824-11	SOCKET, CONNECTOR 5P	
CN405	1-691-765-11	PLUG (MICRO CONNECTOR) 3P	
CN407	1-691-769-11	PLUG (MICRO CONNECTOR) 7P	
* CN601	1-568-834-11	SOCKET, CONNECTOR 15P	

MAIN MIC

Ref. No.	Part No.	Description	Remark
CN701	1-691-770-11	PLUG (MICRO CONNECTOR) 8P	
* CN703	1-564-505-11	PLUG, CONNECTOR 2P	
* CN801	1-568-824-11	SOCKET, CONNECTOR 5P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D402	8-719-987-63	DIODE 1N4148M	
D501	8-719-987-63	DIODE 1N4148M	
D502	8-719-987-63	DIODE 1N4148M	
D503	8-719-001-91	DIODE UZL-15M	
D504	8-719-987-63	DIODE 1N4148M	
D505	8-719-987-63	DIODE 1N4148M	
D506	8-719-200-82	DIODE 11ES2	
D507	8-719-987-63	DIODE 1N4148M	
D508	8-719-987-63	DIODE 1N4148M	
D551	8-719-987-63	DIODE 1N4148M	
D701	8-719-200-02	DIODE 10E2	
D702	8-719-200-02	DIODE 10E2	

< IC >

Ref. No.	Part No.	Description	Remark
IC501	8-759-111-68	IC uPC1237HA	
IC502	8-759-103-93	IC uPC393C	
IC701	8-759-820-13	IC L78MR06	
IC702	8-759-231-58	IC M5F7812L	
IC703	8-759-245-86	IC TA7912S	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q501	8-729-900-63	TRANSISTOR DTA124ES	
Q502	8-729-118-01	TRANSISTOR 2SB1116	
Q503	8-729-118-01	TRANSISTOR 2SB1116	
Q603	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R430	1-249-438-11	CARBON 56K 5% 1/4W	
R431	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R432	1-249-418-11	CARBON 1.2K 5% 1/4W	F
⚠R433	1-215-891-11	METAL OXIDE 680 5% 2W	F
R480	1-249-437-11	CARBON 47K 5% 1/4W	
R481	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R482	1-249-418-11	CARBON 1.2K 5% 1/4W	F
R501	1-249-435-11	CARBON 33K 5% 1/4W	
R502	1-249-441-11	CARBON 100K 5% 1/4W	
R503	1-249-429-11	CARBON 10K 5% 1/4W	
R504	1-249-441-11	CARBON 100K 5% 1/4W	
R505	1-249-437-11	CARBON 47K 5% 1/4W	
R506	1-249-430-11	CARBON 12K 5% 1/4W	
R510	1-249-429-11	CARBON 10K 5% 1/4W	
R511	1-249-417-11	CARBON 1K 5% 1/4W	F
R512	1-249-405-11	CARBON 100 5% 1/4W	F
R513	1-249-426-11	CARBON 5.6K 5% 1/4W	
R514	1-249-441-11	CARBON 100K 5% 1/4W	
R515	1-249-426-11	CARBON 5.6K 5% 1/4W	
R516	1-249-441-11	CARBON 100K 5% 1/4W	
R517	1-249-426-11	CARBON 5.6K 5% 1/4W	
R518	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R519	1-249-441-11	CARBON 100K 5% 1/4W	
R551	1-249-435-11	CARBON 33K 5% 1/4W	
R600	1-249-417-11	CARBON 1K 5% 1/4W	F
⚠R701	1-212-934-00	FUSIBLE 1 5% 1/2W	F
⚠R702	1-212-934-00	FUSIBLE 1 5% 1/2W	F

< RELAY >

Ref. No.	Part No.	Description	Remark
RY401	1-515-765-11	RELAY	

****

Ref. No.	Part No.	Description	Remark
*	1-647-285-11	MIC BOARD *********	

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C201	1-124-464-11	ELECT 0.22uF 20% 50V	
C202	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C203	1-162-286-31	CERAMIC 220PF 10% 50V	
C204	1-162-286-31	CERAMIC 220PF 10% 50V	
C205	1-124-464-11	ELECT 0.22uF 20% 50V	
C206	1-126-157-11	ELECT 10uF 20% 16V	
C208	1-164-159-11	CERAMIC 0.1uF 50V	
C209	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C251	1-124-464-11	ELECT 0.22uF 20% 50V	
C252	1-124-464-11	ELECT 0.22uF 20% 50V	
C256	1-126-157-11	ELECT 10uF 20% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN202	1-568-850-11	SOCKET, CONNECTOR 7P	
* CN404	1-568-848-11	SOCKET, CONNECTOR 5P	

< IC >

Ref. No.	Part No.	Description	Remark
IC201	8-759-634-50	IC M5218AL	

< JACK >

Ref. No.	Part No.	Description	Remark
J201	1-562-837-21	JACK (MIX MIC)	
J401	1-562-837-21	JACK (HEADPHONES)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R201	1-249-429-11	CARBON 10K 5% 1/4W	
R202	1-249-417-11	CARBON 1K 5% 1/4W	F
R203	1-249-441-11	CARBON 100K 5% 1/4W	
R204	1-249-417-11	CARBON 1K 5% 1/4W	F
R205	1-249-438-11	CARBON 56K 5% 1/4W	
R206	1-249-409-11	CARBON 220 5% 1/4W	F
R251	1-249-429-11	CARBON 10K 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
R252	1-249-438-11	CARBON 56K 5% 1/4W	
R253	1-249-441-11	CARBON 100K 5% 1/4W	
R256	1-249-409-11	CARBON 220 5% 1/4W	F
**			
*	A-4360-169-A	PANEL BOARD, COMPLETE ******************** (AEP, E, AUS, EA, JE, MY, SP)	
*	A-4360-189-A	PANEL BOARD, COMPLETE (G, IT) ********************	
*	1-690-880-31	LEAD (WITH CONNECTOR)	
		< CAPACITOR >	
C102	1-126-301-11	ELECT 1uF 20% 50V	
C103	1-162-282-31	CERAMIC 100PF 10% 50V	
C104	1-162-282-31	CERAMIC 100PF 10% 50V	
C105	1-126-301-11	ELECT 1uF 20% 50V	
C106	1-126-157-11	ELECT 10uF 20% 16V	
C107	1-124-465-00	ELECT 0.47uF 20% 50V	
C108	1-124-464-11	ELECT 0.22uF 20% 50V	
C109	1-126-301-11	ELECT 1uF 20% 50V	
C110	1-162-282-31	CERAMIC 100PF 10% 50V	
C152	1-126-301-11	ELECT 1uF 20% 50V	
C153	1-162-282-31	CERAMIC 100PF 10% 50V	
C154	1-162-282-31	CERAMIC 100PF 10% 50V	
C155	1-126-301-11	ELECT 1uF 20% 50V	
C156	1-126-157-11	ELECT 10uF 20% 16V	
C157	1-124-465-00	ELECT 0.47uF 20% 50V	
C158	1-124-464-11	ELECT 0.22uF 20% 50V	
C159	1-126-301-11	ELECT 1uF 20% 50V	
C160	1-162-282-31	CERAMIC 100PF 10% 50V	
C601	1-161-494-00	CERAMIC 0.022uF 25V	
C602	1-126-096-11	ELECT 10uF 20% 35V	
C603	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C604	1-126-157-11	ELECT 10uF 20% 16V	
C607	1-164-159-11	CERAMIC 0.1uF 50V	
C609	1-164-159-11	CERAMIC 0.1uF 50V	
C706	1-126-157-11	ELECT 10uF 20% 16V	
		< FILTER >	
CF601	1-577-358-21	VIBRATOR, CERAMIC	
		< CONNECTOR >	
* CN201	1-568-826-11	SOCKET, CONNECTOR 7P	
* CN602	1-568-858-11	SOCKET, CONNECTOR 15P	
		< DIODE >	
D101	8-719-987-63	DIODE 1N4148M	
D151	8-719-987-63	DIODE 1N4148M	

Ref. No.	Part No.	Description	Remark
D603	8-719-987-63	DIODE 1N4148M	
D605	8-719-987-63	DIODE 1N4148M	
D606	8-719-301-37	LED SEL2210S-CD (ON/STANDBY)	
D607	8-719-026-72	DIODE SML1860A (DYNAMIC BASS SYSTEM)	
D608	8-719-026-72	DIODE SML1860A (DYNAMIC BASS SYSTEM)	
D609	8-719-026-72	DIODE SML1860A (DYNAMIC BASS SYSTEM)	
D610	8-719-301-37	LED SEL2210S-CD (MUTING -20dB)	
D611	8-719-302-23	DIODE SEL2213C-C (PHONO)	
D612	8-719-302-23	DIODE SEL2213C-C (TUNER)	
D613	8-719-302-23	DIODE SEL2213C-C (CD)	
D614	8-719-302-23	DIODE SEL2213C-C (MD/DAT)	
D615	8-719-302-23	DIODE SEL2213C-C (TAPE)	
D616	8-719-302-23	DIODE SEL2213C-C (VIDEO)	
D703	8-719-200-82	DIODE 11ES2	
		< IC >	
IC101	8-759-634-50	IC M5218AL	
IC601	8-759-164-19	IC MC68HC05P9-SC405649B	
IC603	8-749-923-43	IC GP1U57XB	
IC604	8-759-917-43	IC SN74HC138AN	
		< TRANSISTOR >	
Q101	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q102	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q103	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q104	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q151	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q152	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q153	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q154	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q601	8-729-900-36	TRANSISTOR DTC124ES	
Q602	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q605	8-729-900-36	TRANSISTOR DTC124ES	
Q606	8-729-900-63	TRANSISTOR DTA124ES	
Q607	8-729-900-63	TRANSISTOR DTA124ES	
Q608	8-729-900-69	TRANSISTOR DTA144WS	
Q609	8-729-900-36	TRANSISTOR DTC124ES	
Q610	8-729-900-63	TRANSISTOR DTA124ES	
Q613	8-729-900-36	TRANSISTOR DTC124ES	
		< RESISTOR >	
R101	1-249-429-11	CARBON 10K 5% 1/4W	
R102	1-249-429-11	CARBON 10K 5% 1/4W	
R103	1-249-417-11	CARBON 1K 5% 1/4W	F
R107	1-247-903-00	CARBON 1M 5% 1/4W	
R110	1-249-441-11	CARBON 100K 5% 1/4W	
R111	1-249-431-11	CARBON 15K 5% 1/4W	

PANEL POWER AMP

Ref. No.	Part No.	Description	Remark
R112	1-249-435-11	CARBON 33K 5% 1/4W	
R113	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R114	1-247-895-00	CARBON 470K 5% 1/4W	
R115	1-249-429-11	CARBON 10K 5% 1/4W	
R116	1-249-417-11	CARBON 1K 5% 1/4W F	
R117	1-249-417-11	CARBON 1K 5% 1/4W F	
R118	1-249-429-11	CARBON 10K 5% 1/4W	
R151	1-249-429-11	CARBON 10K 5% 1/4W	
R152	1-249-429-11	CARBON 10K 5% 1/4W	
R153	1-249-417-11	CARBON 1K 5% 1/4W F	
R157	1-247-903-00	CARBON 1M 5% 1/4W	
R160	1-249-441-11	CARBON 100K 5% 1/4W	
R161	1-249-431-11	CARBON 15K 5% 1/4W	
R162	1-249-435-11	CARBON 33K 5% 1/4W	
R163	1-249-418-11	CARBON 1.2K 5% 1/4W F	
R164	1-247-895-00	CARBON 470K 5% 1/4W	
R165	1-249-429-11	CARBON 10K 5% 1/4W	
R166	1-249-417-11	CARBON 1K 5% 1/4W F	
R167	1-249-417-11	CARBON 1K 5% 1/4W F	
R168	1-249-429-11	CARBON 10K 5% 1/4W	
R601	1-249-417-11	CARBON 1K 5% 1/4W F	
R602	1-249-429-11	CARBON 10K 5% 1/4W	
R605	1-247-903-00	CARBON 1M 5% 1/4W	
R606	1-249-429-11	CARBON 10K 5% 1/4W	
R607	1-249-429-11	CARBON 10K 5% 1/4W	
R608	1-249-393-11	CARBON 10 5% 1/4W F	
R609	1-249-429-11	CARBON 10K 5% 1/4W	
R610	1-249-432-11	CARBON 18K 5% 1/4W	
R611	1-249-429-11	CARBON 10K 5% 1/4W	
R612	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R613	1-249-424-11	CARBON 3.9K 5% 1/4W F	
R614	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R615	1-249-424-11	CARBON 3.9K 5% 1/4W F	
R616	1-249-416-11	CARBON 820 5% 1/4W F	
R617	1-249-411-11	CARBON 330 5% 1/4W	
R619	1-249-437-11	CARBON 47K 5% 1/4W	
R620	1-249-441-11	CARBON 100K 5% 1/4W	
R624	1-249-429-11	CARBON 10K 5% 1/4W	
R625	1-249-441-11	CARBON 100K 5% 1/4W	
R626	1-249-417-11	CARBON 1K 5% 1/4W F	
R628	1-249-409-11	CARBON 220 5% 1/4W F	
R629	1-249-438-11	CARBON 56K 5% 1/4W	
R630	1-249-441-11	CARBON 100K 5% 1/4W	
R631	1-249-417-11	CARBON 1K 5% 1/4W F	
R633	1-249-417-11	CARBON 1K 5% 1/4W F	
R634	1-249-417-11	CARBON 1K 5% 1/4W F	
R635	1-249-417-11	CARBON 1K 5% 1/4W F	
R703	1-249-417-11	CARBON 1K 5% 1/4W F	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV101	1-223-336-11	RES, VAR, CARBON 50K/50K (LEVEL)	
RV102	1-223-201-11	RES, VAR, CARBON 100K/100K (FREQUENCY)	
RV201	1-241-813-11	RES, VAR, CARBON 50K (MIC LEVEL)	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S601	1-572-184-11	SWITCH, KEYBOARD (SYSTEM POWER)	
S602	1-572-184-11	SWITCH, KEYBOARD (DYNAMIC BASS SYSTEM)	
S603	1-572-184-11	SWITCH, KEYBOARD (MUTING -20dB)	
S604	1-572-184-11	SWITCH, KEYBOARD (◁)	
S605	1-572-184-11	SWITCH, KEYBOARD (▷)	

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* A-4360-186-A POWER AMP BOARD, COMPLETE (AEP)
****

* A-4360-194-A POWER AMP BOARD, COMPLETE (G, IT)
****

* A-4360-209-A POWER AMP BOARD, COMPLETE
****
(E, AUS, EA, JE, MY, SP)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C401	1-124-257-00	ELECT 2.2uF 20% 50V	
C402	1-162-286-31	CERAMIC 220PF 10% 50V	
C403	1-162-282-31	CERAMIC 100PF 10% 50V	
C404	1-126-967-11	ELECT 47uF 20% 50V	
C405	1-126-967-11	ELECT 47uF 20% 50V	
C406	1-124-122-11	ELECT 100uF 20% 50V	(AEP, G, IT)
	1-124-572-11	ELECT 100uF 20% 63V	(E, AUS, EA, JE, MY, SP)
C407	1-124-927-11	ELECT 4.7uF 20% 100V	
C408	1-124-916-11	ELECT 22uF 20% 63V	
C409	1-136-165-00	FILM 0.1uF 5% 50V	
C410	1-136-163-00	FILM 0.068uF 5% 50V	
C411	1-136-163-00	FILM 0.068uF 5% 50V	
C412	1-126-967-11	ELECT 47uF 20% 50V	
C431	1-161-494-00	CERAMIC 0.022uF 25V	
C432	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C451	1-124-257-00	ELECT 2.2uF 20% 50V	
C452	1-162-286-31	CERAMIC 220PF 10% 50V	
C453	1-162-282-31	CERAMIC 100PF 10% 50V	
C454	1-126-967-11	ELECT 47uF 20% 50V	
C455	1-126-967-11	ELECT 47uF 20% 50V	
C457	1-124-927-11	ELECT 4.7uF 20% 100V	
C460	1-136-163-00	FILM 0.068uF 5% 50V	
C461	1-136-163-00	FILM 0.068uF 5% 50V	

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D401	8-719-987-63	DIODE 1N4148M	
D451	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC401	8-749-920-22	IC STK-4172MK2K (AEP, G, IT)	
	8-749-900-78	IC STK-4192MK2 (E, AUS, EA, JE, MY, SP)	
		< COIL >	
L401	1-420-872-00	COIL, AIR CORE	
L451	1-420-872-00	COIL, AIR CORE	
		< TRANSISTOR >	
Q401	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q402	8-729-900-36	TRANSISTOR DTC124ES	
Q403	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q451	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
		< RESISTOR >	
R401	1-249-417-11	CARBON 1K 5% 1/4W	F
R402	1-249-438-11	CARBON 56K 5% 1/4W	
R403	1-249-416-11	CARBON 820 5% 1/4W	F
R404	1-249-438-11	CARBON 56K 5% 1/4W	
R405	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R406	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R407	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R408	1-249-427-11	CARBON 6.8K 5% 1/4W	F
⚠R409	1-212-881-11	FUSIBLE 100 5% 1/4W	F
⚠R410	1-217-151-00	RES, METAL PLATE 0.22 2W	
R411	1-249-417-11	CARBON 1K 5% 1/4W	F
R412	1-249-431-11	CARBON 15K 5% 1/4W	
R413	1-249-441-11	CARBON 100K 5% 1/4W	
R414	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R415	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R416	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R417	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R418	1-249-397-11	CARBON 22 5% 1/4W	F
R419	1-249-397-11	CARBON 22 5% 1/4W	F
R420	1-249-397-11	CARBON 22 5% 1/4W	F
R421	1-249-397-11	CARBON 22 5% 1/4W	F
R422	1-249-429-11	CARBON 10K 5% 1/4W	
R423	1-247-881-00	CARBON 120K 5% 1/4W	
R424	1-249-437-11	CARBON 47K 5% 1/4W	
R425	1-249-417-11	CARBON 1K 5% 1/4W	F
R426	1-249-439-11	CARBON 68K 5% 1/4W	
R427	1-249-437-11	CARBON 47K 5% 1/4W	
R428	1-249-426-11	CARBON 5.6K 5% 1/4W	
R429	1-249-433-11	CARBON 22K 5% 1/4W	
R451	1-249-417-11	CARBON 1K 5% 1/4W	F
R452	1-249-438-11	CARBON 56K 5% 1/4W	
R453	1-249-416-11	CARBON 820 5% 1/4W	F
R454	1-249-438-11	CARBON 56K 5% 1/4W	
R455	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R456	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R457	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R458	1-249-427-11	CARBON 6.8K 5% 1/4W	F
⚠R459	1-212-881-11	FUSIBLE 100 5% 1/4W	F
⚠R460	1-217-151-00	RES, METAL PLATE 0.22 2W	
R461	1-249-417-11	CARBON 1K 5% 1/4W	F
R462	1-249-431-11	CARBON 15K 5% 1/4W	
R463	1-249-441-11	CARBON 100K 5% 1/4W	
R468	1-249-397-11	CARBON 22 5% 1/4W	F
R469	1-249-397-11	CARBON 22 5% 1/4W	F
R470	1-249-397-11	CARBON 22 5% 1/4W	F
R471	1-249-397-11	CARBON 22 5% 1/4W	F

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POWER SUPPLY BOARD
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Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C708	1-136-165-00	FILM 0.1uF 5% 50V	
C709	1-136-165-00	FILM 0.1uF 5% 50V	
C710	1-130-483-00	MYLAR 0.01uF 5% 50V	
C711	1-130-483-00	MYLAR 0.01uF 5% 50V	
		< DIODE >	
D706	8-719-200-02	DIODE 10E2	
D707	8-719-200-02	DIODE 10E2	
D708	8-719-200-02	DIODE 10E2	
D709	8-719-200-02	DIODE 10E2	
D710	8-719-987-63	DIODE 1N4148M	
D711	8-719-987-63	DIODE 1N4148M	
D712	8-719-302-38	DIODE RBV-602-01	
		< RESISTOR >	
⚠R706	1-212-934-00	FUSIBLE 1 5% 1/2W	F
⚠R707	1-212-934-00	FUSIBLE 1 5% 1/2W	F
R708	1-249-429-11	CARBON 10K 5% 1/4W	
R709	1-249-429-11	CARBON 10K 5% 1/4W	

****

Ref. No.	Part No.	Description	Remark
*	1-647-288-11	SENSOR BOARD ************	
		< CAPACITOR >	
C512	1-164-159-11	CERAMIC 0.1uF 50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SENSOR SPEAKER VOL

Ref.No.	Part No.	Description	Remark
		< CONNECTOR >	
* CN502	1-564-518-11	PLUG, CONNECTOR 3P	
		< IC >	
IC503	8-759-947-34	IC LM35DZ	

****

Ref.No.	Part No.	Description	Remark
*	1-647-287-11	SPEAKER BOARD *************	
		< CAPACITOR >	
C416	1-136-163-00	FILM 0.068uF 5% 50V	(G, IT)
C417	1-136-163-00	FILM 0.068uF 5% 50V	(G, IT)
C466	1-136-163-00	FILM 0.068uF 5% 50V	(G, IT)
C467	1-136-163-00	FILM 0.068uF 5% 50V	(G, IT)
		< CONNECTOR >	
CN402	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
		< JACK >	
J402	1-568-572-11	JACK, PIN 2P (REAR SPEAKER)	
		< RESISTOR >	
R434	1-249-397-11	CARBON 22 5% 1/4W F	(G, IT)
R435	1-249-397-11	CARBON 22 5% 1/4W F	(G, IT)
R484	1-249-397-11	CARBON 22 5% 1/4W F	(G, IT)
R485	1-249-397-11	CARBON 22 5% 1/4W F	(G, IT)
		< TERMINAL >	
TM401	1-537-445-11	TERMINAL BOARD (SP)(FRONT SPEAKER)	

****

Ref.No.	Part No.	Description	Remark
		VOL BOARD *********	
		< CAPACITOR >	
C606	1-161-494-00	CERAMIC 0.022uF 25V	
		< DIODE >	
D617	8-719-200-82	DIODE 11ES2	
		< IC >	
IC602	8-759-820-62	IC LB1639	
		< VARIABLE RESISTOR >	
RV103	1-223-200-11	RES, VAR, CARBON 10K/100K/100K	(VOLUME)

****

Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
4	1-590-033-11	WIRE, FLAT TYPE (7 CORE)	
10	1-751-032-11	WIRE (FLAT TYPE) (15 CORE)	
* 57	1-533-213-31	HOLDER FUSE	
64	1-751-023-11	WIRE (FLAT TYPE) (5 CORE)	
⚠F701	1-532-350-00	FUSE, TIME-LAG (T4.0AL)	(E, AUS, EA, JE, MY, SP)
⚠F702	1-532-203-00	FUSE, TIME-LAG (T2.0AL)	
M901	1-541-953-11	MOTOR, DC FAN	
RV103	1-223-200-11	RES, VAR, CARBON 10K/100K/100K	(VOLUME)
⚠T901	1-423-535-11	TRANSFORMER, POWER	(AEP, G, IT)
⚠	1-423-537-11	TRANSFORMER, POWER	(E, AUS, EA, JE, MY, SP)

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****

HARDWARE LIST

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Ref.No.	Part No.	Description	Remark
#1	7-682-547-09	SCREW +BVTT 3X6 (S)	
#2	7-682-548-04	SCREW +BVTT 3X8 (S)	
#3	7-685-647-71	SCREW +BVTP 3X10 TYPE2 IT-3	
#4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#5	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#6	7-685-871-01	SCREW +BVTT 3X6 (S)	

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Replace only with part number specified.

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